

SEQUENCE LISTING

<110> Morton, Philip A

<120> ANTIBODIES TO c-MET FOR THE TREATMENT OF CANCERS

<130> 00980/1

<150> 60/447,073

<151> 2003-02-13

<160> 161

<170> PatentIn version 3.2

<210> 1

<211> 238

<212> PRT

<213> artificial

<220>

<223> phage display generated human antibody

<400> 1

Glu Val Gln Leu Leu Glu Ser Gly Arg Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly
100 105 110

Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ala Val
115 120 125

Leu Thr Gln Pro Ser Ser Val Ser Gly Ala Pro Gly Gln Arg Val Thr
130 135 140

Ile Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Ala Asp Tyr Asp Val
 145 150 155 160

His Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr
 165 170 175

Gly Asn Asn Asn Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser
 180 185 190

Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu
 195 200 205

Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Asn Ser Pro Asp Ala
 210 215 220

Tyr Val Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Ser
 225 230 235

<210> 2
 <211> 244
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 2

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Arg Lys Pro Gly Ala
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Thr Ser Gly Tyr Thr Phe Ile Asp Tyr
 20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Trp Val Asn Pro Val Thr Gly Thr Ser Gly Ser Ser Pro Asn Phe
 50 55 60

Arg Gly Arg Val Thr Met Thr Thr Asp Thr Ser Gly Asn Thr Ala Tyr
 65 70 75 80

Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Phe Tyr Cys
 85 90 95

Ala Arg Arg His Gln Gln Ser Leu Asp Tyr Trp Gly Gln Gly Thr Leu

100	105	110
Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly		
115	120	125
Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser		
130	135	140
Ala Pro Pro Gly Gln Lys Val Thr Ile Ser Cys Ser Gly Ser Ser Ser		
145	150	155
Asn Ile Gly Thr Asn Tyr Val Ser Trp Tyr Gln Gln Leu Pro Gly Thr		
165	170	175
Ala Pro Lys Leu Leu Ile Tyr Asp Asn His Lys Arg Pro Ser Val Ile		
180	185	190
Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Thr Leu Gly		
195	200	205
Ile Ser Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr Tyr Cys Gly Thr		
210	215	220
Trp Asp Tyr Ser Leu Ser Thr Trp Val Phe Gly Gly Gly Thr Lys Leu		
225	230	235
		240

Thr Val Leu Gly

<210> 3
 <211> 240
 <212> PRT
 <213> artificial
 <220>
 <223> phage display generated human antibody
 <400> 3

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
1 5 10 15
Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Asp Ser Val Ser Ser Tyr
20 25 30
Tyr Trp Trp Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp
35 40 45

Ile Gly Glu Ile Phe Arg Asp Gly Ser Ser Asn Tyr Asn Arg Ser Leu
50 55 60

Lys Ser Arg Val Thr Ile Ser Pro Asp Lys Pro Lys Asn Gln Phe Ser
65 70 75 80

Leu Arg Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Ile Tyr Tyr Cys
85 90 95

Ala Arg His Ile Arg Gly Tyr Asp Ala Phe Asp Ile Trp Gly Arg Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
115 120 125

Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser
130 135 140

Val Ser Gly Ala Pro Gly Gln Arg Val Thr Ile Ser Cys Thr Gly Ser
145 150 155 160

Ser Ser Asn Ile Gly Ala Gly Tyr Asp Val His Trp Tyr Gln Gln Phe
165 170 175

Pro Gly Arg Ala Pro Lys Leu Leu Ile Tyr Gly Asn Thr Asn Arg Pro
180 185 190

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Asp Ile Ser Ala
195 200 205

Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr
210 215 220

Cys Gln Ser Tyr Asp Ser Asn Leu Thr Gly Val Phe Gly Gly Gly Thr
225 230 235 240

<210> 4
<211> 244
<212> PRT
<213> artificial

<220>
<223> phage display generated human antibody

<400> 4

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Arg Lys Pro Gly Ala

1		5		10		15											
Ser	Val	Lys	Val	Ser	Cys	Lys	Thr	Ser	Gly	Tyr	Thr	Phe	Met	Asp	Tyr		
		20						25					30				
Tyr	Ile	His	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met		
		35					40					45					
Gly	Trp	Ser	Asn	Pro	Val	Thr	Gly	Thr	Ser	Gly	Ser	Ser	Pro	Lys	Phe		
	50					55					60						
Arg	Gly	Arg	Val	Thr	Leu	Thr	Thr	Asp	Thr	Ser	Gly	Asn	Thr	Ala	Tyr		
65					70					75					80		
Leu	Asp	Leu	Arg	Ser	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Phe	Tyr	Cys		
				85					90						95		
Ala	Arg	Arg	His	Gln	Gln	Ser	Leu	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Met		
			100					105					110				
Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Gly		
		115					120						125				
Gly	Gly	Gly	Ser	Ala	Gln	Ser	Val	Leu	Thr	Gln	Pro	Pro	Ser	Val	Ser		
	130					135					140						
Ala	Ala	Pro	Gly	Gln	Lys	Val	Thr	Ile	Ser	Cys	Ser	Gly	Ser	Ser	Ser		
145					150					155					160		
Asn	Ile	Gly	Asn	Asn	Tyr	Val	Ser	Trp	Tyr	Gln	Gln	Leu	Pro	Gly	Thr		
			165						170					175			
Ala	Pro	Lys	Leu	Leu	Met	Tyr	Glu	Asn	Ser	Lys	Arg	Pro	Ser	Gly	Ile		
			180					185					190				
Pro	Asp	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Gly	Thr	Ser	Gly	Thr	Leu	Gly		
		195					200					205					
Ile	Thr	Gly	Leu	Gln	Thr	Gly	Asp	Glu	Ala	Asp	Tyr	Tyr	Cys	Gly	Thr		
	210					215					220						
Trp	Asp	Thr	Ser	Leu	Arg	Ala	Trp	Val	Phe	Gly	Gly	Gly	Thr	Lys	Val		
225					230					235					240		
Thr	Val	Leu	Gly														

<210> 5
 <211> 244
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 5

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Val Arg Lys Pro Gly Ala
 1 5 10 15

Ser Ala Lys Val Ser Cys Lys Thr Ser Gly Tyr Thr Phe Ile Asp Tyr
 20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Trp Ile Asn Pro Val Thr Gly Ala Ser Gly Ser Ser Pro Asn Phe
 50 55 60

Arg Gly Arg Val Thr Leu Thr Thr Asp Thr Ser Gly Asn Thr Ala Tyr
 65 70 75 80

Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Phe Tyr Cys
 85 90 95

Ala Arg Arg His Gln Gln Ser Leu Asp Tyr Trp Gly Arg Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
 115 120 125

Gly Gly Gly Ser Ala Gln Ser Val Val Thr Gln Pro Pro Ser Val Ser
 130 135 140

Ala Ala Pro Gly Gln Lys Val Thr Ile Ser Cys Ser Gly Arg Thr Ser
 145 150 155 160

Asn Ile Gly Asn Asn Tyr Val Ser Trp Tyr Gln Gln Val Pro Gly Ala
 165 170 175

Pro Pro Lys Leu Leu Ile Phe Asp Asn Asn Lys Arg Pro Ser Gly Thr
 180 185 190

Pro Ala Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Thr Leu Ala
 195 200 205

Ile Ser Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr Tyr Cys Gly Thr
 210 215 220

Trp Asp Thr Thr Leu Arg Gly Phe Val Phe Gly Pro Gly Thr Lys Val
 225 230 235 240

Thr Val Leu Gly

<210> 6
 <211> 250
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 6

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Ser Thr
 20 25 30

Asn Trp Trp Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu
 50 55 60

Lys Ser Arg Val Thr Ile Ser Val Asp Lys Ser Lys Asn His Phe Ser
 65 70 75 80

Leu Asn Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Asp Ser Met Gly Ser Thr Gly Trp His Tyr Gly Met Asp Leu
 100 105 110

Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser
 115 120 125

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Ala Leu Thr

130 135 140
 Gln Pro Pro Ser Ala Ser Gly Ser Pro Gly Gln Ser Val Thr Ile Ser
 145 150 155 160
 Cys Ser Gly Ser Ser Ser Asp Ile Gly Asp Tyr Asn His Val Ser Trp
 165 170 175
 Tyr Gln Gln His Pro Gly Lys Ala Pro Lys Leu Met Ile Tyr Asp Val
 180 185 190
 Asn Lys Trp Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser
 195 200 205
 Gly Asn Thr Ala Ser Leu Thr Val Ser Gly Leu Gln Ala Glu Asp Glu
 210 215 220
 Ala Asp Tyr Tyr Cys Ser Ser Tyr Ser Gly Ile Tyr Asn Leu Val Phe
 225 230 235 240
 Gly Gly Gly Thr Lys Val Thr Val Leu Gly
 245 250

<210> 7
 <211> 251
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 7

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Lys Thr Tyr
 20 25 30
 Ala Ile Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45
 Gly Gly Ile Ile Pro Val Leu Gly Thr Ala Asn Tyr Val Gln Lys Phe
 50 55 60
 Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Thr Thr Ala Tyr
 65 70 75 80

Met Glu Leu Arg Gly Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Gly Glu Gly Ser Gly Trp Tyr Asp His Tyr Tyr Gly Leu Asp
100 105 110

Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly
115 120 125

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu
130 135 140

Thr Gln Pro Pro Ser Ala Ser Gly Thr Pro Gly Gln Arg Val Thr Ile
145 150 155 160

Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Ser Asn Thr Val Asn Trp
165 170 175

Tyr Arg Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Phe Gly Asp
180 185 190

Asp Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Arg Ser
195 200 205

Gly Thr Ser Val Ser Leu Ala Ile Ser Gly Leu Gln Ser Glu Asp Glu
210 215 220

Ala Asp Tyr Tyr Cys Ala Ala Trp Asp Asp Ser Leu Asn Gly Gly Val
225 230 235 240

Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
245 250

<210> 8
<211> 250
<212> PRT
<213> artificial

<220>
<223> phage display generated human antibody

<400> 8

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr

20					25					30					
Ala	Met	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val
	35						40					45			
Ser	Ala	Ile	Ser	Gly	Ser	Gly	Gly	Ser	Thr	Tyr	Tyr	Ala	Asp	Ser	Val
	50					55					60				
Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	Lys	Asn	Thr	Leu	Tyr
65						70					75				80
Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
			85						90					95	
Ala	Lys	Asp	His	Tyr	Tyr	Asp	Ser	Ser	Gly	Tyr	Leu	Asp	Tyr	Trp	Gly
			100					105					110		
Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly
		115					120					125			
Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Ala	Leu	Asn	Phe	Met	Leu	Thr	Gln
	130					135					140				
Pro	His	Ser	Val	Ser	Glu	Ser	Pro	Gly	Lys	Thr	Val	Thr	Ile	Ser	Cys
145						150					155				160
Thr	Arg	Ser	Ser	Gly	Ser	Ile	Ala	Phe	Asp	Tyr	Val	Gln	Trp	Tyr	Gln
				165					170					175	
Gln	Arg	Pro	Gly	Ser	Ala	Pro	Thr	Thr	Val	Ile	Tyr	Glu	Asp	Asn	Gln
			180					185					190		
Arg	Pro	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Ala	Ser	Ile	Asp	Ser	Ser
		195					200					205			
Ser	Asn	Ser	Ala	Ser	Leu	Thr	Ile	Ser	Ala	Leu	Lys	Thr	Glu	Asp	Glu
	210					215					220				
Ala	Asp	Tyr	Tyr	Cys	Gln	Ser	Tyr	Asp	Asn	Ser	Asn	Ser	Trp	Val	Phe
225						230					235				240
Gly	Gly	Gly	Thr	Lys	Leu	Thr	Val	Leu	Gly						
				245					250						

<210> 9

<211> 242
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 9

Lys Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Asp Asp Val Arg Asn Ala Phe Asp Ile Trp Gly Arg Gly Thr
 100 105 110

Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 115 120 125

Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Val
 130 135 140

Ser Val Ser Pro Gly Gln Thr Thr Ser Ile Thr Cys Ser Arg Asp Lys
 145 150 155 160

Leu Gly Glu Gln Tyr Val Tyr Trp Tyr Gln Gln Arg Pro Gly Gln Ser
 165 170 175

Pro Ile Leu Leu Leu Tyr Gln Asp Ser Arg Arg Pro Ser Trp Ile Pro
 180 185 190

Glu Arg Phe Ser Gly Ser Asn Ser Gly Asp Thr Ala Thr Leu Thr Ile
 195 200 205

Ser Gly Thr Gln Ala Leu Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp
 210 215 220

Asp Asn Ser Ser Tyr Val Ala Phe Gly Gly Gly Thr Lys Val Thr Val
 225 230 235 240

Leu Gly

<210> 10
 <211> 245
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 10

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Gly Gly Glu Leu Trp Asn Pro Tyr Leu Asp Tyr Trp Gly Gln
 100 105 110

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly
 115 120 125

Gly Ser Gly Gly Gly Gly Ser Ala Leu Pro Val Leu Thr Gln Pro Pro
 130 135 140

Ser Val Ser Val Ala Pro Gly Lys Thr Ala Arg Ile Thr Cys Gly Gly

145 150 155 160
 Asn Asp Ile Ala Ser Lys Ser Val Gln Trp Phe Gln Gln Lys Pro Gly
 165 170 175
 Gln Ala Pro Val Leu Val Ile Tyr Tyr Asp Ser Asp Arg Pro Ser Gly
 180 185 190
 Ile Pro Glu Arg Phe Ser Gly Ser Asn Ser Glu Asn Thr Ala Thr Leu
 195 200 205
 Thr Ile Ser Arg Val Glu Ala Gly Asp Glu Ala Asp Tyr Tyr Cys Gln
 210 215 220
 Val Trp Asp Ser Ser Ser Asp His Pro Val Phe Gly Gly Gly Thr Lys
 225 230 235 240
 Leu Thr Val Leu Gly
 245

 <210> 11
 <211> 250
 <212> PRT
 <213> artificial

 <220>
 <223> phage display generated human antibody

 <400> 11

 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Glu
 1 5 10 15

 Ser Leu Lys Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asn Tyr
 20 25 30

 Trp Ile Ala Trp Val Arg Gln Met Pro Gly Lys Gly Leu Glu Trp Met
 35 40 45

 Gly Ile Ile Tyr Pro Asp Asp Ser Asp Thr Arg Tyr Asn Pro Ser Phe
 50 55 60

 Gln Gly Gln Val Thr Met Ser Ala Asp Lys Ser Ile Asp Thr Ala Tyr
 65 70 75 80

 Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Ile Tyr Tyr Cys
 85 90 95

Ala Arg Pro Ser Gly Trp Asn Asp Asn Gly Tyr Phe Asp Tyr Trp Gly
 100 105 110

Arg Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln
 130 135 140

Pro His Ser Val Ser Ala Ser Pro Gly Lys Thr Val Thr Leu Ser Cys
 145 150 155 160

Thr Gly Ser Ser Gly Ser Ile Ala Ser Asn Tyr Val Gln Trp Tyr Arg
 165 170 175

Gln Arg Pro Gly Ser Ala Pro Thr Thr Val Ile Tyr Asp Asp Asn Gln
 180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ser
 195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu
 210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Phe Asp Asn Asp Asn His Trp Val Phe
 225 230 235 240

Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
 245 250

<210> 12
 <211> 247
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 12

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Arg Ser Ser Gly
 1 5 10 15

Ile Leu Ser Leu Thr Cys Ser Val Ser Gly Val Ser Val Ser Ser Asn
 20 25 30

Asn Trp Trp Ser Trp Val Arg Gln Thr Pro Gly Lys Gly Leu Glu Trp

35					40					45					
Ile	Gly	Glu	Ile	Tyr	Gln	Thr	Gly	Thr	Thr	Asn	Tyr	Asn	Pro	Ser	Leu
50					55					60					
Lys	Ser	Arg	Val	Ala	Ile	Ser	Leu	Asp	Lys	Ser	Arg	Asn	Gln	Phe	Ser
65					70					75					80
Leu	Ile	Leu	Lys	Ser	Val	Thr	Ala	Ala	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Arg	Thr	Ser	Ser	Ala	Trp	Ser	Asn	Ala	Asp	Trp	Gly	Lys	Gly	Thr
			100					105					110		
Met	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser
			115				120					125			
Gly	Gly	Gly	Gly	Ser	Ala	Leu	Ser	Ser	Glu	Leu	Thr	Gln	Asp	Pro	Ser
	130					135					140				
Ala	Ser	Gly	Ser	Pro	Gly	Gln	Ser	Val	Ser	Ile	Ser	Cys	Thr	Gly	Thr
145					150					155					160
Ser	Ser	Asp	Val	Gly	Gly	Tyr	Asn	Tyr	Val	Ser	Trp	Tyr	Gln	Gln	His
				165					170					175	
Pro	Gly	Lys	Ala	Pro	Lys	Leu	Met	Ile	Ser	Glu	Val	Thr	Lys	Arg	Pro
			180					185					190		
Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Gly	Asn	Thr	Ala
		195					200					205			
Ser	Leu	Thr	Val	Ser	Gly	Leu	Gln	Ala	Glu	Asp	Glu	Ala	Asp	Tyr	Tyr
	210					215					220				
Cys	Ser	Ser	Phe	Gly	Ala	Asn	Asn	Asn	Tyr	Leu	Val	Phe	Gly	Gly	Gly
225					230					235					240
Thr	Lys	Leu	Thr	Val	Leu	Gly									
				245											

<210> 13
 <211> 251
 <212> PRT
 <213> artificial

<220>

<223> phage display generated human antibody

<400> 13

Gln Val Gln Leu Gln Glu Ser Gly Pro Arg Leu Val Lys Pro Ser Gln
1 5 10 15

Thr Leu Ser Leu Thr Cys Thr Val Ser Asn Asp Ser Ile Ile Ser Gly
20 25 30

Asp Tyr Phe Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu
35 40 45

Trp Ile Gly Asn Ile Phe Tyr Thr Gly Ser Thr Ser Tyr Asn Pro Ser
50 55 60

Leu Lys Ser Arg Leu Thr Met Ser Leu Asp Thr Ser Lys Asn Gln Phe
65 70 75 80

Ser Leu Arg Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Phe
85 90 95

Cys Ala Arg Gly Arg Gln Gly Met Asn Trp Asn Ser Gly Thr Tyr Phe
100 105 110

Asp Ser Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly
115 120 125

Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Ser Tyr
130 135 140

Val Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Lys Thr Ala
145 150 155 160

Asn Ile Thr Cys Gly Gly Lys Asn Ile Gly Asn Lys Ser Val Gln Trp
165 170 175

Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Val Val Met Tyr Tyr Asp
180 185 190

Ser Asp Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser Asn Ala
195 200 205

Gly Asn Thr Ala Thr Leu Thr Ile Asp Arg Val Glu Ala Gly Asp Glu
210 215 220

Ala Asp Tyr Tyr Cys Gln Val Trp Asp Lys Ser Ser Asp Arg Pro Val
 225 230 235 240

Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
 245 250

<210> 14
 <211> 245
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 14

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Thr Ser Gly Tyr Thr Phe Met Glu Tyr
 20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Trp Ser Asn Pro Val Thr Gly Thr Ser Gly Ser Ser Pro Lys Phe
 50 55 60

Arg Gly Arg Val Thr Leu Thr Thr Asp Thr Ser Gly Asn Thr Ala Tyr
 65 70 75 80

Leu Asp Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Phe Tyr Cys
 85 90 95

Ala Arg Arg His Gln Gln Ser Leu Asp Tyr Trp Gly Gln Gly Thr Leu
 100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
 115 120 125

Gly Gly Gly Ser Ala Gln Ser Val Val Thr Gln Pro Pro Ser Ala Ser
 130 135 140

Gly Ser Pro Gly Gln Ser Val Thr Ile Ser Cys Ser Gly Tyr Ser Ser
 145 150 155 160

Ser Asn Ile Gly Asn Asn Ala Val Ser Trp Tyr Gln Gln Leu Pro Gly

Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro
 130 135 140

Pro Ser Val Ser Val Ala Pro Gly Gln Thr Ala Arg Ile Thr Cys Gly
 145 150 155 160

Gly Asp Asn Ile Gly Arg Lys Asn Val His Trp Tyr Gln Gln Arg Pro
 165 170 175

Gly Leu Ala Pro Val Leu Val Val Tyr Asp Asp Thr Asp Arg Pro Ser
 180 185 190

Gly Ile Pro Glu Arg Phe Ser Gly Ser Asn Ser Gly Asp Thr Ala Thr
 195 200 205

Leu Thr Ile Thr Trp Val Glu Ala Gly Asp Glu Ala Asp Tyr Tyr Cys
 210 215 220

Gln Leu Trp Asp Ser Asp Thr Tyr Asp Val Leu Phe Gly Gly Gly Thr
 225 230 235 240

Lys Leu Thr Val Leu Gly
 245

<210> 16
 <211> 247
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 16

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Ser Ser Gly Gly Pro Phe Ser Ser Tyr
 20 25 30

Gly Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Gly Ile Ser Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe

50		55		60
Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Glu Thr Ala Tyr				
65		70		75
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys				
	85		90	95
Ala Arg Asp Glu Ser Pro Val Gly Phe Tyr Ala Leu Asp Ile Trp Gly				
	100		105	110
Arg Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly				
	115		120	125
Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Ser Tyr Glu Leu Thr Gln				
	130		135	140
Pro Pro Ser Val Ser Val Ala Pro Gly Gln Thr Ala Arg Ile Asn Cys				
	145		150	155
Gly Gly Asp Lys Ile Gly Ser Arg Ser Val His Trp Tyr Gln Gln Lys				
	165		170	175
Pro Gly Gln Ala Pro Val Met Val Val Tyr Asp Asp Ser Asp Arg Pro				
	180		185	190
Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser Asn Ser Gly Asn Thr Ala				
	195		200	205
Thr Leu Thr Ile Ser Ser Val Glu Ala Gly Asp Glu Ala Asp Tyr Tyr				
	210		215	220
Cys Gln Val Trp Asp Gly Ser Thr Asp Pro Trp Val Phe Gly Gly Gly				
	225		230	235
Thr Lys Val Thr Val Leu Gly				
	245			

<210> 17
 <211> 255
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 17

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Met Lys Lys Pro Gly Ser
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr
 20 25 30
 Ala Val Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45
 Gly Gly Ile Ile Pro Ile Phe Asp Thr Ser Asn Tyr Ala Gln Lys Phe
 50 55 60
 Gln Gly Arg Leu Thr Met Thr Ala Asp Asp Ser Thr Asn Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Arg Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Gly Ala Pro Arg Gly Thr Val Met Ala Phe Ser Ser Tyr Tyr
 100 105 110
 Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly
 115 120 125
 Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn
 130 135 140
 Phe Met Leu Thr Gln Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr
 145 150 155 160
 Val Ile Ile Ser Cys Ala Gly Ser Gly Gly Asn Ile Ala Thr Asn Tyr
 165 170 175
 Val Gln Trp Tyr Gln His Arg Pro Gly Ser Ala Pro Ile Thr Val Ile
 180 185 190
 Tyr Glu Asp Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly
 195 200 205
 Ser Val Asp Ser Ser Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu
 210 215 220
 Gln Thr Glu Asp Glu Ala Asp Tyr Tyr Cys His Ser Tyr Asp Asn Thr
 225 230 235 240

Asp Gln Gly Val Phe Gly Thr Gly Thr Lys Val Thr Val Leu Gly
245 250 255

<210> 18
<211> 253
<212> PRT
<213> artificial

<220>
<223> phage display generated human antibody

<400> 18

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
20 25 30

Asp Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Ser Ile Ser Trp Ser Gly Gly Thr Ile Gly Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Val Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Val Arg Ala Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Lys Asp Arg Gly Ala Val Ala Ala Leu Pro Asp Tyr Gln Tyr Gly
100 105 110

Met Asp Val Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser
130 135 140

Ala Leu Thr Gln Pro Ala Ser Val Ser Gly Ser Pro Gly Gln Ser Ile
145 150 155 160

Thr Ile Ser Cys Thr Gly Thr Ser Ser Asp Ile Gly Ser Tyr Asn Leu
165 170 175

Val Ser Trp Tyr Gln Gln His Pro Gly Lys Ala Pro Lys Leu Met Ile

180 185 190
 Tyr Glu Asp Tyr Lys Arg Ala Ser Gly Val Ser Asn His Phe Ser Gly
 195 200 205
 Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu Gln Ala
 210 215 220
 Glu Asp Glu Ala Asp Tyr Tyr Cys Ser Ser Tyr Ala Gly Ser Ser Ala
 225 230 235 240
 Trp Val Phe Gly Gly Gly Thr Lys Val Thr Val Leu Gly
 245 250

<210> 19
 <211> 245
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 19

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Arg Lys Pro Gly Ser
 1 5 10 15

Ser Met Lys Val Ser Cys Lys Ala Ser Gly Asp Thr Phe Arg Asn Phe
 20 25 30

Ala Phe Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Gly Val Ile Pro Leu Val Gly Pro Pro Lys Tyr Ala Gln Lys Phe
 50 55 60

Gln Gly Arg Leu Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ser Tyr
 65 70 75 80

Met Asp Leu Thr Ser Leu Thr Leu Glu Asp Thr Ala Val Tyr Phe Cys
 85 90 95

Ala Arg Gly Gly Val Tyr Ala Pro Phe Asp Lys Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 115 120 125

Gly Gly Gly Gly Ser Ala Gln Ser Val Val Thr Gln Pro Pro Ser Val
 130 135 140

Ser Glu Ala Pro Arg Gln Arg Val Thr Ile Ser Cys Ser Gly Ser Ser
 145 150 155 160

Ser Asn Ile Gly Asn Asn Ala Val Asn Trp Tyr Gln Gln Leu Pro Gly
 165 170 175

Lys Ala Pro Lys Leu Leu Ile Tyr Tyr Asn Asp Leu Leu Pro Ser Gly
 180 185 190

Val Ser Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu
 195 200 205

Ala Ile Ser Gly Leu Gln Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala
 210 215 220

Ala Trp Asp Asp Ser Leu Asn Gly Trp Val Phe Gly Gly Gly Thr Lys
 225 230 235 240

Val Thr Val Leu Gly
 245

<210> 20
 <211> 251
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 20

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Lys Thr Tyr
 20 25 30

Ala Ile Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Gly Ile Ile Pro Val Leu Gly Thr Ala Asn Tyr Val Gln Lys Phe
 50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Thr Thr Ala Tyr

65 70 75 80
 Met Glu Leu Arg Gly Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Gly Glu Gly Ser Gly Trp Tyr Asp His Tyr Tyr Gly Leu Asp
 100 105 110
 Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly
 115 120 125
 Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu
 130 135 140
 Thr Gln Pro Pro Ser Ala Ser Gly Thr Pro Gly Gln Arg Val Thr Ile
 145 150 155 160
 Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Ser Asn Thr Val Asn Trp
 165 170 175
 Tyr Arg Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Phe Gly Asp
 180 185 190
 Asp Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Arg Ser
 195 200 205
 Gly Thr Ser Val Ser Leu Ala Ile Ser Gly Leu Gln Ser Glu Asp Glu
 210 215 220
 Ala Asp Tyr Tyr Cys Ala Ala Trp Asp Asp Ser Leu Asn Gly Gly Val
 225 230 235 240
 Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
 245 250

 <210> 21
 <211> 248
 <212> PRT
 <213> artificial

 <220>
 <223> phage display generated human antibody

 <400> 21

 Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
 100 105 110

Lys Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ala Val Leu Thr Gln Pro
 130 135 140

Ser Ser Val Ser Ala Ala Pro Gly Gln Lys Val Thr Ile Ser Cys Ser
 145 150 155 160

Gly Ser Ser Ser Asn Ile Gly Asn Asn Tyr Val Ser Trp Tyr Gln Gln
 165 170 175

Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Asp Asn Asn Lys Arg
 180 185 190

Pro Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser Arg Ser Gly Thr Ser
 195 200 205

Ala Thr Leu Gly Ile Thr Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr
 210 215 220

Tyr Cys Gly Thr Trp Asp Ser Ser Leu Ser Ala Val Val Phe Gly Thr
 225 230 235 240

Gly Thr Lys Leu Thr Val Leu Gly
 245

<210> 22
 <211> 250
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 22

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Ser Thr
 20 25 30

Asn Trp Trp Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu
 50 55 60

Lys Ser Arg Val Thr Ile Ser Val Asp Lys Ser Lys Asn His Phe Ser
 65 70 75 80

Leu Asn Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Asp Ser Met Gly Ser Thr Gly Trp His Tyr Gly Met Asp Leu
 100 105 110

Trp Gly Lys Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser
 115 120 125

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Ala Leu Thr
 130 135 140

Gln Pro Ala Ser Val Ser Gly Ser Pro Gly Gln Ser Ile Ala Ile Ser
 145 150 155 160

Cys Thr Gly Thr Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val Ser Trp
 165 170 175

Tyr Gln Gln His Pro Gly Lys Ala Pro Lys Leu Met Ile Tyr Ala Val
 180 185 190

Thr Asn Arg Pro Ser Gly Val Ser Asp Arg Phe Ser Gly Ser Lys Ser

195 200 205
 Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu Gln Ala Asp Asp Glu
 210 215 220
 Ala Asp Tyr Tyr Cys Ser Ser Tyr Thr Ser Ser Ser Ser Leu Val Phe
 225 230 235 240
 Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
 245 250

 <210> 23
 <211> 240
 <212> PRT
 <213> artificial

 <220>
 <223> phage display generated human antibody

 <400> 23

 Gly Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15

 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30

 Thr Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

 Ser Tyr Ile Ser Ser Ser Gly Ser Ala Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Asn Asn Ser Leu Tyr
 65 70 75 80

 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

 Ala Arg Gly Tyr Arg Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Leu
 100 105 110

 Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
 115 120 125

 Gly Gly Gly Ser Gly Ile Val Met Thr Gln Ser Pro Ser Thr Leu Ser
 130 135 140

Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly
 145 150 155 160

Ile Ser Ser Trp Leu Ala Trp Tyr Gln Gln Lys Pro Gly Arg Ala Pro
 165 170 175

Lys Val Leu Ile Tyr Lys Ala Ser Thr Leu Glu Ser Gly Val Pro Ser
 180 185 190

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
 195 200 205

Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr
 210 215 220

Ser Thr Pro Trp Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg
 225 230 235 240

<210> 24
 <211> 245
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 24

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Thr Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Asp Leu Ala Val Ala Gly Ile Asp Tyr Trp Gly Arg Gly Thr

100 105 110
 Met Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 115 120 125
 Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Ala
 130 135 140
 Ser Gly Thr Pro Gly Gln Arg Val Thr Ile Ser Cys Ser Gly Ser Ser
 145 150 155 160
 Ser Asn Ile Arg Ser Asn Tyr Val Tyr Trp Tyr Gln Gln Phe Pro Gly
 165 170 175
 Thr Ala Pro Lys Leu Leu Ile Tyr Arg Asn Asn Gln Arg Pro Ser Gly
 180 185 190
 Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu
 195 200 205
 Ala Ile Ser Gly Leu Arg Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala
 210 215 220
 Ala Trp Asp Asp Thr Leu Asp Ala Tyr Val Phe Ala Ala Gly Thr Lys
 225 230 235 240
 Leu Thr Val Leu Gly
 245

<210> 25
 <211> 251
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody
 <400> 25

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15
 Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
 20 25 30
 Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln
130 135 140

Pro His Ser Val Ser Gly Ser Pro Gly Arg Thr Val Thr Ile Ser Cys
145 150 155 160

Thr Arg Ser Ser Gly Ser Ile Ala Thr Asn Tyr Val Gln Trp Tyr Gln
165 170 175

Gln Arg Pro Gly Ser Ser Pro Thr Ile Val Ile Tyr Glu Asp Asn Gln
180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Thr Ser
195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu
210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Asn Asn Leu Gly Val Val
225 230 235 240

Phe Gly Gly Gly Thr Gln Leu Thr Val Leu Ser
245 250

<210> 26

<211> 249

<212> PRT

<213> artificial

<220>

<223> phage display generated human antibody

<400> 26

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Val Arg Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Ile Ser Cys Lys Thr Ser Gly Tyr Thr Phe Met Asp Tyr
20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Trp Ser Asn Pro Val Thr Gly Thr Ser Gly Ser Ser Pro Lys Phe
50 55 60

Arg Gly Arg Val Thr Leu Thr Thr Asp Thr Ser Gly Asn Thr Ala Tyr
65 70 75 80

Leu Asp Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Phe Tyr Cys
85 90 95

Ala Arg Arg His Gln Gln Ser Leu Asp Tyr Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
115 120 125

Gly Gly Gly Ser Ala Gln Ala Val Leu Thr Gln Pro Ser Ser Leu Ser
130 135 140

Ala Ser Pro Gly Ala Ser Ala Ser Leu Thr Cys Thr Leu Arg Ser Asp
145 150 155 160

Ile Asn Val Gly Ser Tyr Ser Ile Asn Trp Tyr Gln Gln Lys Pro Gly
165 170 175

Ser Pro Pro Gln Tyr Leu Leu Asn Tyr Arg Ser Asp Ser Asp Lys Gln
180 185 190

Gln Gly Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Lys Asp Ala Ser
195 200 205

Ala Asn Ala Gly Ile Leu Leu Ile Ser Gly Leu Gln Ser Glu Asp Glu
210 215 220

Ala Asp Tyr Tyr Cys Met Ile Trp Tyr Arg Thr Ala Trp Val Phe Gly

Ala Pro Lys Leu Leu Ile Tyr Asp Asn Asn Lys Arg Pro Ser Gly Val
180 185 190

Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Val
195 200 205

Ile Ser Gly Leu Arg Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ala
210 215 220

Trp Asp Gly Ser Leu Thr Ala Trp Val Phe Gly Gly Gly Thr Lys Val
225 230 235 240

Thr Val Leu Gly

<210> 28
<211> 250
<212> PRT
<213> artificial

<220>
<223> phage display generated human antibody

<400> 28

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Asp Ser Ile Ser Ser Ser
20 25 30

Asn Trp Trp Thr Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp
35 40 45

Ile Gly Glu Ile Phe His Ser Gly Thr Thr Asn Tyr Asn Pro Ser Leu
50 55 60

Asn Asn Arg Val Thr Ile Ser Leu Asp Glu Ser Arg Asn Gln Phe Ser
65 70 75 80

Leu Glu Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Ile Tyr Tyr Cys
85 90 95

Ala Arg Asp Ser Gly Asn Tyr Asp Asp Asn Arg Gly Tyr Asp Tyr Trp
100 105 110

Gly Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly

115 120 125
 Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln
 130 135 140
 Pro Pro Ser Val Ser Gly Ala Pro Gly Gln Arg Val Thr Ile Ser Cys
 145 150 155 160
 Ala Gly Thr Ser Ser Asn Ile Gly Ala Gly Phe Asp Val His Trp Tyr
 165 170 175
 Gln Leu Leu Pro Gly Arg Ala Pro Lys Leu Leu Ile Tyr Gly Asn Asn
 180 185 190
 Asn Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly
 195 200 205
 Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Gln Ser Glu Asp Glu Gly
 210 215 220
 Asp Tyr Tyr Cys Ala Ala Trp Asp Asp Thr Val Gly Gly Pro Val Phe
 225 230 235 240
 Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
 245 250

<210> 29
 <211> 250
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 29

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15
 Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Ser Thr
 20 25 30
 Asn Trp Trp Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45
 Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu
 50 55 60

Lys Ser Arg Val Thr Ile Ser Val Asp Lys Ser Lys Asn His Phe Ser
65 70 75 80

Leu Asn Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Asp Ser Met Gly Ser Thr Gly Trp His Tyr Gly Met Asp Leu
100 105 110

Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser
115 120 125

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Ala Leu Thr
130 135 140

Gln Pro Ala Ala Val Ser Gly Ser Pro Gly Gln Ser Ile Thr Ile Ser
145 150 155 160

Cys Thr Gly Ser Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val Ser Trp
165 170 175

Tyr Gln Gln His Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Asp Val
180 185 190

Ser Asp Arg Pro Ser Gly Val Ser Tyr Arg Phe Ser Gly Ser Lys Ser
195 200 205

Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu Gln Ala Glu Asp Glu
210 215 220

Ala Asp Tyr Tyr Cys Ser Ser Tyr Thr Ala Thr Gly Thr Leu Val Phe
225 230 235 240

Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
245 250

<210> 30
<211> 251
<212> PRT
<213> artificial

<220>
<223> phage display generated human antibody
<400> 30

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly

1		5		10		15											
Thr	Leu	Ser	Leu	Thr	Cys	Ala	Val	Ser	Gly	Gly	Ser	Ile	Ser	Ser	Thr		
			20					25					30				
Asn	Trp	Trp	Ser	Trp	Val	Arg	Gln	Pro	Pro	Gly	Lys	Gly	Leu	Glu	Trp		
		35					40					45					
Ile	Gly	Glu	Ile	Tyr	His	Ser	Gly	Ser	Thr	Asn	Tyr	Asn	Pro	Ser	Leu		
	50					55					60						
Lys	Ser	Arg	Val	Thr	Ile	Ser	Val	Asp	Lys	Ser	Lys	Asn	His	Phe	Ser		
65					70					75					80		
Leu	Asn	Leu	Ser	Ser	Val	Thr	Ala	Ala	Asp	Thr	Ala	Val	Tyr	Tyr	Cys		
				85					90					95			
Ala	Arg	Asp	Ser	Met	Gly	Ser	Thr	Gly	Trp	His	Tyr	Gly	Met	Asp	Leu		
			100					105					110				
Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	Ser		
		115					120					125					
Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Ala	Gln	Ser	Ala	Leu	Thr		
	130					135					140						
Gln	Pro	Ala	Ser	Val	Ser	Gly	Ser	Pro	Gly	Gln	Ser	Ile	Thr	Ile	Ser		
145					150					155					160		
Cys	Thr	Gly	Thr	Ser	Ser	Asp	Val	Gly	Gly	Tyr	Asn	Tyr	Val	Ser	Trp		
				165					170					175			
Tyr	Gln	Gln	His	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Met	Ile	Tyr	Glu	Val		
			180					185				190					
Ser	Asn	Arg	Pro	Leu	Gly	Val	Ser	Asn	Arg	Phe	Ser	Gly	Ser	Lys	Ser		
		195					200					205					
Gly	Asn	Thr	Ala	Ser	Leu	Thr	Ile	Ser	Gly	Leu	Gln	Ala	Glu	Asp	Glu		
	210					215					220						
Gly	Asp	Tyr	Tyr	Cys	Ser	Ser	Tyr	Thr	Ser	Ser	Thr	Thr	Leu	Ile	Val		
225					230					235					240		
Phe	Gly	Gly	Gly	Thr	Lys	Leu	Thr	Val	Leu	Gly							

245

250

<210> 31
 <211> 248
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 31

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
 100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro
 130 135 140

Pro Ser Val Ser Gly Thr Thr Gly Gln Arg Val Ile Leu Ser Cys Ser
 145 150 155 160

Gly Gly Asn Ser Asn Ile Gly Tyr Asn Ser Val Asn Trp Tyr Gln Gln
 165 170 175

Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Thr Asp Asp Gln Arg
 180 185 190

Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Arg Ser Gly Thr Ser
195 200 205

Ala Ser Leu Ala Ile Ser Gly Leu Gln Ser Glu Asp Glu Ala Asp Tyr
210 215 220

Tyr Cys Ala Thr Trp Asp Asp Ser Leu Asn Ala Gly Val Phe Gly Gly
225 230 235 240

Gly Thr Lys Leu Thr Val Leu Gly
245

<210> 32
<211> 245
<212> PRT
<213> artificial

<220>
<223> phage display generated human antibody

<400> 32

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Arg Lys Pro Gly Ala
1 5 10 15

Ser Val Arg Val Ser Cys Lys Thr Ser Gly Tyr Thr Phe Leu Glu Tyr
20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Ala Trp Ser Asn Pro Val Thr Gly Thr Ser Gly Ser Ser Pro Lys Phe
50 55 60

Arg Gly Arg Val Thr Leu Thr Ala Asp Thr Ser Gly Asn Thr Ala Tyr
65 70 75 80

Leu Asp Leu Lys Ser Leu Thr Ser Asp Asp Thr Ala Ile Phe Tyr Cys
85 90 95

Ala Arg Arg His Gln Gln Ser Leu Asp Tyr Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
115 120 125

Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser

130 135 140
 Ala Ala Pro Gly Gln Thr Val Thr Ile Ser Cys Ser Gly Ser Asn Ser
 145 150 155 160
 Asn Ile Gly Asn Asn His Val Ser Trp Tyr Arg Gln Leu Pro Glu Thr
 165 170 175
 Ala Pro Lys Leu Leu Ile Tyr Asp Asn Asn Lys Arg Pro Ser Gly Ile
 180 185 190
 Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Thr Leu Asp
 195 200 205
 Ile Thr Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr Tyr Cys Ala Thr
 210 215 220
 Trp Asp Asn Ser Leu Ser Ala Pro Trp Val Phe Gly Gly Gly Thr Lys
 225 230 235 240
 Leu Thr Val Leu Gly
 245

<210> 33
 <211> 252
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody
 <400> 33

Gln Val Gln Leu Gln Glu Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Ser
 20 25 30
 Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45
 Gly Gly Ile Ile Pro Val Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
 50 55 60
 Gln Asp Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
 65 70 75 80

Leu Glu Leu Ser Arg Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Ser Arg Gly Glu Tyr Asp Tyr Gly Asp Tyr Asp Val Tyr Tyr Tyr
100 105 110

Tyr Met Glu Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly
115 120 125

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln
130 135 140

Ser Val Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln Thr
145 150 155 160

Ala Arg Leu Thr Cys Gly Ala Asn Asn Ile Gly Ser Thr Ser Val His
165 170 175

Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr Asp
180 185 190

Asp Thr Asp Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser Asn
195 200 205

Ser Gly Asn Thr Ala Thr Leu Thr Ile Arg Arg Val Glu Ala Gly Asp
210 215 220

Glu Ala Asp Tyr Tyr Cys Gln Val Trp Asp Thr Asn Ser Asp His Val
225 230 235 240

Ile Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
245 250

<210> 34
<211> 249
<212> PRT
<213> artificial

<220>
<223> phage display generated human antibody

<400> 34

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15

Ser Val Lys Val Ser Cys Gln Ala Ser Gly Gly Thr Phe Thr Ser His

20	25	30
Ala Met Tyr Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met		
35	40	45
Gly Gly Ile Ile Pro Ile Phe Gly Arg Thr Asn Tyr Ala Gln Lys Phe		
50	55	60
Gln Gly Arg Val Thr Phe Thr Ala Asp Met Ser Thr Ser Thr Ala Tyr		
65	70	75
Met Glu Met Thr Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys		
85	90	95
Ala Arg Gly Asp Asn Trp Asn Asp Leu Tyr Pro Ile Asp Tyr Trp Gly		
100	105	110
Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly		
115	120	125
Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln		
130	135	140
Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys		
145	150	155
Thr Arg Ser Ser Gly Ser Ile Ala Thr Thr Tyr Val Gln Trp Phe Gln		
165	170	175
Gln Arg Pro Gly Ser Ser Pro Thr Thr Val Ile Tyr Asp Asp Asp Gln		
180	185	190
Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ser		
195	200	205
Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Met Pro Glu Asp Glu		
210	215	220
Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Asn Thr Asp Leu Val Phe Gly		
225	230	235
Gly Gly Thr Gln Leu Thr Val Leu Ser		
245		

<210> 35

<211> 248
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 35

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Val Ser Gly Tyr Ser Leu Ser Glu Leu
 20 25 30

Ser Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Met
 35 40 45

Gly Gly Phe Asp Pro Gln Asn Gly Tyr Thr Ile Tyr Ala Gln Glu Phe
 50 55 60

Gln Gly Arg Ile Thr Met Thr Glu Asp Thr Ser Thr Asp Thr Val Tyr
 65 70 75 80

Met Glu Leu Gly Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Phe Cys
 85 90 95

Ala Ala Ile Glu Ile Thr Gly Val Asn Trp Tyr Phe Asp Leu Trp Gly
 100 105 110

Lys Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Ser Ser Glu Leu Thr Gln
 130 135 140

Asp Pro Asp Val Ser Val Ala Leu Gly Gln Thr Val Arg Ile Thr Cys
 145 150 155 160

Gln Gly Asp Ser Leu Lys Lys Phe Tyr Pro Gly Trp Tyr Gln Gln Lys
 165 170 175

Pro Gly Gln Ala Pro Leu Leu Val Leu Tyr Gly Glu Asn Ile Arg Pro
 180 185 190

Ser Arg Ile Pro Asp Arg Phe Ser Gly Ser Ser Ser Gly Asn Thr Ala
 195 200 205

Thr Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu Ala Val Tyr Tyr
 210 215 220

Cys Asn Ser Arg Glu Ala Ser Val His His Val Arg Val Phe Gly Gly
 225 230 235 240

Gly Thr Lys Leu Thr Val Leu Gly
 245

<210> 36
 <211> 251
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 36

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
 100 105 110

Lys Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln
 130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys

145 150 155 160
 Thr Arg Ser Ser Gly Ser Ile Ala Ser Asn Tyr Val Gln Trp Tyr Gln
 165 170 175
 Gln Arg Pro Gly Ser Ser Pro Thr Thr Val Ile Tyr Glu Asp Asn Gln
 180 185 190
 Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ser
 195 200 205
 Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu
 210 215 220
 Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser Asn Gln Gly Val Val
 225 230 235 240
 Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
 245 250

 <210> 37
 <211> 251
 <212> PRT
 <213> artificial

 <220>
 <223> phage display generated human antibody

 <400> 37
 Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15
 Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
 20 25 30
 Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45
 Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
 50 55 60
 Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
 65 70 75 80
 Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
 100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln
 130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys
 145 150 155 160

Thr Gly Ser Ser Gly Ser Ile Ala Ser Asn Tyr Val Gln Trp Tyr Gln
 165 170 175

Gln Arg Pro Gly Ser Ala Pro Thr Thr Leu Ile Tyr Glu Asp Asp Gln
 180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Val Asp Ser Ser
 195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu
 210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Arg Ser Asn Gln Ala Val Val
 225 230 235 240

Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
 245 250

<210> 38
 <211> 253
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 38

Gln Val Gln Leu Val Gln Ser Gly Pro Glu Val Lys Lys Pro Gly Ala
 1 5 10 15

Ser Val Glu Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Asp
 20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Pro Glu Trp Met

35		40		45
Gly Trp Ile Asn Pro Gln Thr Gly Val Thr Lys Tyr Ala Gln Lys Phe				
50		55		60
Gln Gly Arg Val Thr Met Ala Arg Asp Thr Ser Ile Asn Thr Ala Tyr				
65		70		80
Met Glu Leu Arg Gly Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys				
	85		90	95
Val Arg Glu Asp His Asn Tyr Asp Leu Trp Ser Ala Tyr Asn Gly Leu				
	100		105	110
Asp Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly				
	115		120	125
Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val				
	130		135	140
Leu Thr Gln Pro Pro Ser Val Ser Ala Ala Pro Gly Gln Lys Val Thr				
145		150		155
Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn Asn His Val Ser				
	165		170	175
Trp Tyr Gln Gln Leu Ala Gly Thr Ala Pro Lys Leu Leu Ile Phe Asp				
	180		185	190
Asn Asp Lys Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser Lys				
	195		200	205
Ser Gly Thr Ser Ala Thr Leu Gly Ile Thr Gly Leu Gln Thr Gly Asp				
	210		215	220
Glu Ala Asp Tyr Tyr Cys Gly Thr Trp Asp Lys Ser Pro Thr Asp Ile				
225		230		235
Tyr Val Phe Gly Ser Gly Thr Lys Leu Thr Val Leu Gly				
	245		250	
<210>	39			
<211>	247			
<212>	PRT			
<213>	artificial			

<220>

<223> phage display generated human antibody

<400> 39

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Ser Ser
20 25 30

Asn Trp Trp Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp
35 40 45

Ile Gly Glu Ile Tyr Tyr Gly Gly Ser Thr Asn Tyr Asn Pro Ser Leu
50 55 60

Lys Ser Arg Val Thr Leu Ser Val Asp Lys Ser Lys Asn Gln Phe Ser
65 70 75 80

Leu Arg Leu Ile Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Ser Ser Gly Leu Tyr Gly Asp Tyr Gly Asn Leu Trp Gly Arg
100 105 110

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly
115 120 125

Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Val Thr Gln Pro Pro
130 135 140

Ser Val Ser Ala Ala Pro Gly Gln Lys Val Thr Ile Ser Cys Ser Gly
145 150 155 160

Ser Ala Ser Asn Ile Gly Asp His Tyr Ile Ser Trp Tyr Gln Gln Phe
165 170 175

Pro Gly Thr Ala Pro Lys Leu Leu Ile Ser Asp Asn Asp Gln Arg Pro
180 185 190

Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala
195 200 205

Thr Leu Gly Ile Thr Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr Tyr
210 215 220

Cys Gly Thr Trp Asp Ser Asn Leu Ser Ser Trp Val Phe Gly Ser Gly
 225 230 235 240

Thr Lys Val Thr Val Leu Gly
 245

<210> 40
 <211> 250
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 40

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15

Thr Leu Lys Val Ser Cys Lys Val Ser Ala Tyr Thr Phe Thr Asp Tyr
 20 25 30

Ser Met His Trp Val Gln Gln Ala Pro Gly Lys Gly Leu Lys Trp Met
 35 40 45

Gly Leu Ile Asp Leu Glu Asp Gly Asn Thr Ile Tyr Ala Glu Glu Phe
 50 55 60

Gln Asp Arg Val Thr Ile Thr Ala Asp Thr Ser Thr Asp Thr Ala Tyr
 65 70 75 80

Met Asp Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Phe Tyr Cys
 85 90 95

Ala Ile Ser Pro Leu Arg Gly Leu Thr Ala Asp Val Phe Asp Val Trp
 100 105 110

Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly
 115 120 125

Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Ala Leu Thr Gln
 130 135 140

Pro Ala Ser Ala Ser Gly Ser Pro Gly Gln Ser Ile Thr Ile Ser Cys
 145 150 155 160

Thr Gly Thr Ser Ser Asp Ile Gly Arg Tyr Asp Phe Val Ser Trp Tyr

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
 115 120 125

Ser Gly Gly Gly Gly Ser Ala Gln Ala Val Leu Thr Gln Pro Ser Ser
 130 135 140

Val Ser Gly Ala Pro Gly Gln Arg Val Thr Ile Ser Cys Thr Gly Ser
 145 150 155 160

Ser Ser Asn Ile Gly Ala Gly Tyr Asp Val His Trp Tyr Gln Gln Leu
 165 170 175

Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Gly Asn Ser Asn Arg Pro
 180 185 190

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala
 195 200 205

Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr
 210 215 220

Cys Gln Ser Tyr Asp Ser Ser Leu Ser Gly Val Phe Gly Thr Gly Thr
 225 230 235 240

Gln Leu Thr Val Leu Ser
 245

<210> 42
 <211> 249
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 42

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu

50		55		60	
Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser					
65		70		75	80
Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys					
		85		90	95
Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly					
		100		105	110
Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly					
		115		120	125
Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln					
		130		135	140
Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys					
145		150		155	160
Thr Arg Ser Ser Gly Ser Ile Ala Ser Lys Tyr Val Gln Trp Tyr Gln					
		165		170	175
Gln Arg Pro Gly Ser Ala Pro Thr Ser Val Ile Tyr Glu Asp Asn Gln					
		180		185	190
Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ala					
		195		200	205
Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu					
		210		215	220
Ala Asp Tyr Tyr Cys Gln Ser Asp Asp Gly Ser Ser Val Val Phe Gly					
225		230		235	240
Gly Gly Thr Lys Val Thr Val Leu Gly					
		245			

<210> 43
 <211> 257
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 43

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Ser Phe Pro Ser Ser
 20 25 30
 Gly Leu Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Pro Glu Trp Met
 35 40 45
 Gly Trp Ile Gly Ile Tyr Asn Gly Asn Thr Asp Tyr Ala Gln Lys Phe
 50 55 60
 Gln Gly Arg Val Thr Met Thr Thr Asp Lys Ser Thr Ser Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Asp Ser Val Gly Ser Ile Ser Val Ala Gly Thr Met Gln Tyr
 100 105 110
 Tyr Tyr Phe Ala Met Asp Val Trp Gly Gln Gly Thr Leu Val Thr Val
 115 120 125
 Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
 130 135 140
 Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Ala Ser Gly Ser Pro
 145 150 155 160
 Gly Gln Ser Val Thr Ile Ser Cys Ala Gly Thr Arg Tyr Asp Ile Gly
 165 170 175
 Thr Tyr Asn Tyr Val Ser Trp Tyr Gln Gln His Pro Ala Lys Gly Pro
 180 185 190
 Lys Leu Ile Ile Tyr Ala Val Ser Glu Arg Pro Ser Gly Val Pro Asn
 195 200 205
 Arg Phe Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Val Ser
 210 215 220
 Gly Leu Arg Ala Glu Asp Glu Ala His Tyr Tyr Cys Ser Ser Tyr Ala
 225 230 235 240

Gly Asn Asn Asn Val Ile Phe Gly Gly Gly Thr Lys Val Thr Val Leu
245 250 255

Gly

<210> 44
<211> 247
<212> PRT
<213> artificial

<220>
<223> phage display generated human antibody

<400> 44

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
100 105 110

Arg Gly Thr Met Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro
130 135 140

Pro Ser Ala Ser Gly Thr Pro Gly Gln Arg Val Thr Ile Ser Cys Ser
145 150 155 160

Gly Ser Phe Ser Asn Ile Gly Gly Asn Tyr Val Asn Trp Tyr Gln Gln

Thr Met Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
 115 120 125

Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser
 130 135 140

Ala Ser Gly Thr Pro Gly Gln Arg Val Thr Ile Ser Cys Ser Gly Ser
 145 150 155 160

Ser Ser Asn Ile Gly Thr Asn Tyr Val Tyr Trp Tyr Gln Gln Phe Pro
 165 170 175

Gly Thr Ala Pro Lys Leu Leu Ile Tyr Arg Ser Asn Arg Arg Pro Ser
 180 185 190

Gly Val Pro Asp Arg Phe Ser Ala Ser Lys Ser Gly Thr Ser Ala Ser
 195 200 205

Leu Val Ile Ser Gly Leu Arg Ser Glu Asp Glu Ala Asp Tyr Tyr Cys
 210 215 220

Ala Ala Trp Asp Asp Arg Leu Asn Gly Glu Met Phe Gly Gly Gly Thr
 225 230 235 240

Lys Val Thr Val Leu Gly
 245

<210> 46
 <211> 243
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 46

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val

50		55		60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr				
65		70		80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys				
	85		90	95
Ala Arg Trp Ser Gly Arg Phe Tyr Asp Phe Trp Gly Gln Gly Thr Thr				
	100		105	110
Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly				
	115		120	125
Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Ala Ser				
	130		135	140
Gly Thr Pro Gly Gln Arg Ile Thr Ile Ser Cys Ser Gly Ser Ser Ser				
145		150		155
Asn Ile Gly Ser Asn Tyr Val Tyr Trp Tyr Gln Gln Leu Pro Gly Thr				
	165		170	175
Ala Pro Lys Ile Leu Ile Tyr Arg Asn Asn Gln Arg Pro Ser Gly Val				
	180		185	190
Pro Glu Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala				
	195		200	205
Ile Ser Gly Leu Arg Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ala				
	210		215	220
Trp Asp Asp Ser Leu Ser Glu Val Phe Gly Gly Gly Thr Lys Val Thr				
225		230		235
				240
Val Leu Gly				

<210> 47
 <211> 246
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 47

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Asp Lys Gly Tyr Ser Gly Phe Asp Tyr Trp Gly Arg Gly Thr
 100 105 110
 Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 115 120 125
 Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Ala
 130 135 140
 Ser Gly Thr Pro Gly Gln Arg Val Thr Ile Ser Cys Ser Gly Ser Ser
 145 150 155 160
 Ser Asn Ile Gly Arg His Thr Val Asn Trp Tyr Gln Gln Leu Pro Gly
 165 170 175
 Thr Ala Pro Lys Leu Leu Ile Tyr Ser Asn Asn Gln Arg Pro Ser Gly
 180 185 190
 Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu
 195 200 205
 Ala Ile Ser Gly Leu Gln Ser Glu Asp Glu Gly His Tyr His Cys Ala
 210 215 220
 Ala Trp Asp Asp Thr Leu Asn Gly Asp Val Val Phe Gly Gly Gly Thr
 225 230 235 240

Lys Val Thr Val Leu Gly
245

<210> 48
<211> 251
<212> PRT
<213> artificial

<220>
<223> phage display generated human antibody

<400> 48

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
100 105 110

Lys Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln
130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys
145 150 155 160

Thr Arg Ser Ser Gly Ser Ile Ala Ser Asn Tyr Val Gln Trp Tyr Gln
165 170 175

Gln Arg Pro Gly Ser Ser Pro Thr Thr Val Ile Tyr Glu Asp Asn Gln

180						185						190					
Arg	Pro	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Ile	Asp	Ser	Ser		
		195					200					205					
Ser	Asn	Ser	Ala	Ser	Leu	Thr	Ile	Ser	Gly	Leu	Lys	Thr	Glu	Asp	Glu		
	210					215					220						
Ala	Asp	Tyr	Tyr	Cys	Gln	Ser	Tyr	Asp	Ser	Ser	Asn	Pro	Tyr	Val	Val		
225					230					235					240		
Phe	Gly	Gly	Gly	Thr	Lys	Leu	Thr	Val	Leu	Gly							
				245					250								

Gln 1	Val	Gln	Leu 5	Gln	Glu	Ser	Gly	Pro	Gly 10	Leu	Val	Lys	Pro	Ser 15	Gly
Thr	Leu	Ser	Leu 20	Thr	Cys	Ala	Val	Ser 25	Gly	Gly	Ser	Ile	Ser 30	Thr	Ser
Asp	Trp	Trp 35	Ser	Trp	Val	Arg	Arg 40	Pro	Pro	Gly	Lys	Gly 45	Leu	Glu	Trp
Ile	Gly 50	Glu	Ile	Tyr	His	Ser 55	Gly	Ser	Thr	Asn	Tyr 60	His	Pro	Ser	Leu
Lys 65	Ser	Arg	Val	Thr	Ile 70	Ser	Leu	Asp	Lys	Ser 75	Lys	Asn	Gln	Phe	Ser 80
Leu	Lys	Leu	Ser	Ser 85	Val	Thr	Ala	Ala	Asp 90	Thr	Ala	Val	Tyr	Tyr 95	Cys
Ala	Arg	Glu	Gly 100	Gly	His	Ser	Gly	Ser 105	Tyr	Pro	Leu	Asp	Tyr 110	Trp	Gly
Gln	Gly 115	Thr	Leu	Val	Thr	Val	Ser 120	Ser	Gly	Gly	Gly	Gly 125	Ser	Gly	Gly

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln
 130 135 140

Pro His Ser Val Ser Gly Ser Pro Gly Arg Thr Val Thr Ile Ser Cys
 145 150 155 160

Thr Arg Ser Ser Gly Ser Ile Ala Thr Asn Tyr Val Gln Trp Tyr Gln
 165 170 175

Gln Arg Pro Gly Ser Ser Pro Thr Ile Val Ile Tyr Glu Asp Asn Gln
 180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Thr Ser
 195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu
 210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Asn Asn Leu Gly Val Val
 225 230 235 240

Phe Gly Gly Gly Thr Gln Leu Thr Val Leu Ser
 245 250

<210> 50
 <211> 248
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 50

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser

65		70		75		80									
Leu	Lys	Leu	Ser	Ser	Val	Thr	Ala	Ala	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
			85						90					95	
Ala	Arg	Glu	Gly	Gly	His	Ser	Gly	Ser	Tyr	Pro	Leu	Asp	Tyr	Trp	Gly
		100						105					110		
Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly
		115					120					125			
Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Ala	Gln	Ser	Val	Val	Thr	Gln	Pro
	130					135					140				
Pro	Ser	Val	Ser	Ala	Ala	Pro	Gly	Gln	Lys	Val	Thr	Ile	Ser	Cys	Ser
145				150					155						160
Gly	Ser	Ser	Ser	Asn	Ile	Gly	Asn	Asn	Tyr	Val	Ser	Trp	Tyr	Lys	Gln
				165					170					175	
Leu	Pro	Gly	Thr	Ala	Pro	Lys	Leu	Leu	Ile	Tyr	Asp	Asn	Asn	Lys	Arg
			180					185					190		
Pro	Ser	Gly	Ile	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Gly	Thr	Ser
		195					200					205			
Ala	Thr	Leu	Gly	Ile	Thr	Gly	Leu	Gln	Thr	Gly	Asp	Glu	Ala	Asp	Tyr
	210					215					220				
Tyr	Cys	Gly	Thr	Trp	Asp	Ser	Ser	Leu	Ser	Gly	Val	Val	Phe	Gly	Gly
225					230					235					240
Gly	Thr	Lys	Leu	Thr	Val	Leu	Gly								
			245												

<210> 51
 <211> 251
 <212> PRT
 <213> artificial

 <220>
 <223> phage display generated human antibody

 <400> 51

Gln	Leu	Gln	Leu	Gln	Glu	Ser	Gly	Pro	Gly	Leu	Val	Lys	Pro	Ser	Gly
1				5				10					15		

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
 100 105 110

Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln
 130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys
 145 150 155 160

Thr Arg Ser Ser Gly Ser Ile Ala Ser Asn Tyr Val Gln Trp Tyr Gln
 165 170 175

Gln Arg Pro Gly Ser Ser Pro Thr Thr Leu Ile Tyr Asp Asp Asn Gln
 180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ser
 195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu
 210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser Asn Leu Gly Val Val
 225 230 235 240

Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
 245 250

<210> 52
 <211> 250
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 52

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
 100 105 110

Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln
 130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Ala Thr Ile Ser Cys
 145 150 155 160

Thr Gly Ser Gly Gly Ser Ile Ala Arg Ser Tyr Val Gln Trp Tyr Gln
 165 170 175

Gln Arg Pro Gly Arg Ala Pro Ser Ile Val Ile Tyr Glu Asp Tyr Gln
 180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ser

195		200		205
Ser Asn Ser Ala Ser Leu Thr Ile Thr Gly Leu Lys Thr Asp Asp Glu				
210		215		220
Ala Asp Tyr Tyr Cys Gln Ser Ser Asp Asp Asn Asn Asn Val Val Phe				
225		230		235
				240
Gly Gly Gly Thr Lys Val Thr Val Leu Gly				
		245		250
<210>	53			
<211>	248			
<212>	PRT			
<213>	artificial			
<220>				
<223>	phage display generated human antibody			
<400>	53			
Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly				
1	5		10	15
Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser				
	20		25	30
Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp				
	35		40	45
Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu				
	50		55	60
Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser				
65		70	75	80
Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys				
	85		90	95
Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly				
	100		105	110
Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly				
	115		120	125
Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ala Val Leu Thr Gln Pro				
	130		135	140

Ser Ser Val Ser Ala Ala Pro Gly Gln Lys Val Thr Ile Ser Cys Ser
 145 150 155 160

Gly Ser Ser Ser Asn Ile Gly Asn Asn Tyr Val Ser Trp Tyr Gln Gln
 165 170 175

Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Asp Asn Asn Glu Arg
 180 185 190

Pro Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser
 195 200 205

Ala Thr Leu Gly Ile Thr Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr
 210 215 220

Tyr Cys Gly Thr Trp Asp Ser Ser Leu Ser Thr Val Val Phe Gly Thr
 225 230 235 240

Gly Thr Lys Val Thr Val Leu Gly
 245

<210> 54
 <211> 249
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 54

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys

85

90

95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
 100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln
 130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Val Ser Cys
 145 150 155 160

Thr Gly Ser Gly Gly Asn Ile Ala Ser Asn Tyr Val Gln Trp Tyr Gln
 165 170 175

Gln Arg Pro Asp Ser Ala Pro Thr Leu Val Ile Phe Glu Asp Thr Gln
 180 185 190

Arg Pro Ser Gly Val Pro Ala Arg Phe Ser Gly Ser Ile Asp Ser Ser
 195 200 205

Ser Asn Ser Ala Ser Leu Ile Ile Ser Ser Leu Arg Thr Glu Asp Glu
 210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Ser Asp Ser Asn Arg Val Val Phe Gly
 225 230 235 240

Gly Gly Thr Lys Val Thr Val Leu Gly
 245

<210> 55
 <211> 241
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 55

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1 5 10 15

Thr Leu Ser Leu Thr Cys Asn Val Ser Gly Gly Ser Ile Arg Asn Tyr
 20 25 30

Phe Trp Ser Trp Ile Arg Gln Pro Pro Gly Gln Gly Leu Glu Tyr Ile
 35 40 45

Gly Tyr Ile Tyr Tyr Ser Gly Thr Thr Asp Tyr Asn Pro Ser Leu Lys
 50 55 60

Gly Arg Val Thr Ile Ser Leu Asp Thr Ser Lys Thr Gln Phe Ser Leu
 65 70 75 80

Lys Leu Asn Ser Val Thr Ala Ala Asp Thr Ala Phe Tyr Tyr Cys Val
 85 90 95

Arg Gly Pro Asn Lys Tyr Ala Phe Asp Pro Trp Gly Gln Gly Thr Leu
 100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
 115 120 125

Gly Gly Gly Ser Ala Leu Ser Tyr Glu Leu Thr Gln Pro Pro Ser Val
 130 135 140

Ser Val Ser Pro Gly Gln Thr Ala Ser Ile Thr Cys Ser Gly Asp Lys
 145 150 155 160

Leu Gly Asp Lys Phe Ala Ser Trp Tyr Gln Gln Lys Ala Gly Gln Ser
 165 170 175

Pro Val Leu Val Ile Tyr Arg Asp Thr Lys Arg Pro Ser Gly Ile Pro
 180 185 190

Glu Arg Phe Ser Gly Ser Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile
 195 200 205

Ser Gly Thr Gln Ala Met Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp
 210 215 220

Asp Ser Ser Thr Ala Val Phe Gly Thr Gly Thr Lys Val Thr Val Leu
 225 230 235 240

Gly

<210> 56
 <211> 251
 <212> PRT

<213> artificial

<220>

<223> phage display generated human antibody

<400> 56

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln
130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys
145 150 155 160

Thr Arg Ser Ser Gly Ser Ile Asp Asn Asn Tyr Val Gln Trp Tyr Gln
165 170 175

Gln Arg Pro Gly Ser Ser Pro Thr Thr Val Ile Phe Glu Asp Asn Gln
180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ser
195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu

210 215 220
 Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser His Asn Gln Gly Val Val
 225 230 235 240

 Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
 245 250

 <210> 57
 <211> 248
 <212> PRT
 <213> artificial

 <220>
 <223> phage display generated human antibody

 <400> 57

 Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15

 Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
 20 25 30

 Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

 Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
 50 55 60

 Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
 65 70 75 80

 Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

 Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
 100 105 110

 Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125

 Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro
 130 135 140

 Pro Ser Val Ser Ala Ala Pro Gly Gln Lys Val Thr Ile Ser Cys Ser
 145 150 155 160

Gly Ser Ser Ser Asn Ile Gly Asn Ser Tyr Val Ser Trp Tyr Lys Gln
165 170 175

Leu Pro Gly Thr Ala Pro Lys Val Leu Ile Tyr Asp Asn Gln Lys Arg
180 185 190

Ser Ser Gly Ile Pro Asp Arg Phe Ser Ala Ser Lys Ser Gly Thr Ser
195 200 205

Ala Thr Leu Gly Ile Thr Gly Leu Arg Thr Glu Asp Glu Ala Asp Tyr
210 215 220

Tyr Cys Gly Thr Trp Asp Thr Ser Leu Ser Ala Val Val Phe Gly Gly
225 230 235 240

Gly Thr Lys Leu Thr Val Leu Gly
245

<210> 58
<211> 248
<212> PRT
<213> artificial

<220>
<223> phage display generated human antibody

<400> 58

Glu Val Gln Leu Val Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly

100 105 110
 Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125
 Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Val Thr Gln Pro
 130 135 140
 Pro Ser Val Ser Ala Ala Pro Gly Gln Lys Val Thr Ile Ser Cys Ser
 145 150 155 160
 Gly Asn Phe Ser Asn Ile Glu Tyr Asn Tyr Val Ser Trp Tyr Gln His
 165 170 175
 Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Phe Asp Asn Asn Gln Arg
 180 185 190
 Pro Ser Trp Ile Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser
 195 200 205
 Ala Thr Leu Gly Ile Thr Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr
 210 215 220
 Tyr Cys Gly Thr Trp Asp Ser Ser Leu Asn Ala Gly Val Phe Gly Gly
 225 230 235 240
 Gly Thr Lys Val Thr Val Leu Gly
 245

<210> 59
 <211> 245
 <212> PRT
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 59

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Arg Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Asp Arg Arg Gly Val Leu Asp Pro Trp Gly Lys Gly Thr Met
100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
115 120 125

Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser
130 135 140

Gly Ala Pro Gly Gln Arg Val Thr Ile Ser Cys Thr Gly Ser Ser Ser
145 150 155 160

Asn Ile Gly Ala Gly Tyr Asp Val His Trp Tyr Gln His Leu Pro Gly
165 170 175

Thr Ala Pro Arg Leu Leu Ile Tyr Gly Asn Ser Asn Arg Pro Ser Gly
180 185 190

Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu
195 200 205

Ala Ile Ser Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln
210 215 220

Ser Tyr Asp Ser Ser Leu Ser Asp Trp Val Phe Gly Gly Gly Thr Lys
225 230 235 240

Val Thr Val Leu Gly
245

<210> 60

<211> 250

<212> PRT

<213> artificial

<220>

<223> phage display generated human antibody

<400> 60

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
100 105 110

Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln
130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys
145 150 155 160

Ala Arg Ser Ser Gly Ser Ile Ala Ser Asn Tyr Val Gln Trp Tyr Gln
165 170 175

Gln Arg Pro Gly Ser Ser Pro Thr Thr Leu Ile Tyr Glu Asp Arg Gln
180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ser
195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu
210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser Asp His Val Val Phe

225

230

235

240

Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
 245 250

<210> 61
 <211> 741
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 61
 gaggtgcagc tgttggagtc tgggcgaggc ttggtacagc ctgggggggtc cctgagactc 60
 tcctgtgcag cctctggatt cacctttagc agctatgcca tgagctgggt ccgccaggct 120
 ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac 180
 gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
 ctgcaaatac acagcctgag agccgaggac acggccgtgt attactgtgc gagatttgcc 300
 gtaactgggg agtttgacta ctggggggcag gggaccacgg tcaccgtctc gagtggaggc 360
 ggcggttcag gcggaggtgg ctctggcggg ggcggaagtg cacaggctgt gctgactcag 420
 ccgtcctcag tgtctggggc cccagggcag aggggtcacca tctcctgcac tgggagcagc 480
 tccaacatcg gggcagatta tgatgtacac tgggtaccagc agcttcagg aacagccccc 540
 aaactcctca tctatggtaa caacaatcgg ccctcagggg tccttgaccg attctctggc 600
 tccaagtctg gcacctcagc ctccctggcc atcactgggc tccaggctga ggatgaggct 660
 gattattact gccagtccta tgacaacagc ccggatgcct atgtggtctt cggcggaggg 720
 accaagctga ccgtcctaag t 741

<210> 62
 <211> 732
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 62
 caggtgcagc tgggtgcagtc tggggctgag gtgagaaaagc ctggggcctc agtgaaggtc 60
 tcctgcaaga cttctggata caccttcacg gactactata tacactgggt gcgacaggcc 120
 cctggacaag ggcttgagtg gatgggctgg gtcaaccctg tcaactggaac ctgaggctct 180
 tcaccaact ttcggggcag ggtcaccatg accaccgaca cgtccggcaa cacagcctat 240

atggaactga ggagccttag atctgacgac acggccgtat tttactgtgc gaggcgtcac	300
caacagagct tggattattg gggccaggga accctgggtca ccgtctcgag tggaggcggc	360
ggttcaggcg gaggtggctc tggcgggtggc ggaagtgcac agtctgtgtt gacgcagccg	420
ccctcagtgt ctgcgcccc gggacagaag gtcaccatct cctgctctgg aagcagctcc	480
aacattggga ctaattatgt atcctgggtac cagcagctcc caggaacagc ccccaaactc	540
ctcatttatg acaatcataa ggcaccctca gtgattcctg accgcttctc tggctccaag	600
tctggcacgt cagccaccct gggcatctcc ggactccaga ctggggacga ggccgattat	660
tactgcggaa catgggatta cagcctgagt acttgggtgt tcggcggagg gaccaagctg	720
accgtcctag gt	732

<210> 63
 <211> 720
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 63	
cagttgcagc tgcaggagtc cggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctggaga ctccgtcagc agttattact ggtggagttg ggtccgccag	120
ccccaggga aggggctgga gtggattgga gaaatctttc gtgatgggag ctccaactac	180
aaccggtccc tcaagagtcg ggtcaccata tccccagaca agcccaagaa tcagttctct	240
ctgaggctga gctctgtgac cgccgaggac acggccattt actactgtgc gaggcataata	300
cgcggttatg atgcttttga catctggggc cggggaaccc tggtcaccgt ctcgagtgga	360
ggcggcggtt caggcggagg tggctctggc ggtggcggaa gtgcacagtc tgtgttgacg	420
cagccgccct cagtgtctgg ggccccaggg cagaggggtca ccatctcctg tactgggagc	480
agctccaaca tcggggcagg ttatgatgta cactggtacc agcagtttcc aggaagagcc	540
ccaagctcc tcatctatgg taacaccaat cggccctcag ggtccctga ccgattctct	600
ggctccaagt ctgacatctc agcctccctg gccatcactg ggctccaggc tgaggatgag	660
gctgattatt actgtcagtc ctatgacagc aacctgactg ggggtgttcgg cggagggacc	720

<210> 64
 <211> 732
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 64
caggtgcagc tgggtgcagtc tggggctgag gtgaggaagc ctggggcctc agtgaaggtc 60
tcctgcaaga cttctggata caccttcatg gactactaca tacactgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggctgg agcaaccctg tcactggtac gtcaggctct 180
tcacctaaat ttcggggcag ggtcaccttg accactgaca cgtccggcaa cacagcctat 240
ttggacctga ggagccttag atctgacgac acggccgtat tttactgtgc gaggcgtcac 300
caacagagct tggattattg gggccaaggg acaatggcca ccgtctcgag tggaggcggc 360
ggttcaggcg gaggtggctc tggcgggtggc ggaagtgcac agtctgtgtt gacgcagccg 420
ccctcagtgt ctgcggcccc aggacagaag gtcaccatct cctgctctgg aagcagctcc 480
aacattggga ataattatgt atcctggtac cagcaactcc caggaacagc ccccaaactc 540
ctcatgtatg aaaatagtaa gcgaccctca gggattcctg accggttctc tggctccaag 600
tctggcacgt caggcaccct gggcatcacc ggactccaga ctggggacga ggccgattat 660
tactgcggaa catgggatac cagcctgaga gcttgggtgt tcggcggagg gaccaaggtc 720
accgtcctag gt 732

<210> 65
<211> 732
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 65
caggtacagc tgcagcagtc aggggctgag gtgaggaagc ctggggcctc ggcgaaggtc 60
tcctgcaaga cttctggata caccttcatc gactactata tacactgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggctgg atcaaccctg tcactggtgc ctcaggctct 180
tcacctaact ttcggggcag ggtcaccttg accaccgaca cgtccggcaa cacagcctat 240
atggagctga ggagccttag atctgacgac acggccgtgt tttactgtgc gaggcgtcac 300
caacagagct tggattattg ggggcggggg accacggtca ccgtctcgag tggaggcggc 360
ggttcaggcg gaggtggctc tggcgggtggc ggaagtgcac agtctgtcgt gacgcagccg 420
ccctcagtgt ctgcggctcc aggacagaag gtcaccatct cctgctctgg gaggacatcc 480
aacattggga acaattatgt atcctggtat cagcaagtcc caggagcgcc ccccaaacta 540
ctcatttttg acaataataa gcgaccctca gggactcctg cccgattctc tggctccaag 600
tctggcacgt cagccaccct ggccatctcc ggactccaga ccggggacga ggccgattat 660

tactgcggaa catgggatac taccctgcgt ggttttgtct tcgggcccgg gaccaaggtc 720
accgtcctag gt 732

<210> 66
<211> 750
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 66
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggggac cctgtccctc 60
acctgcgctg tctctggtgg ctccatcagc agtactaact ggtggagttg ggtccgccag 120
ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac 180
aaccctccc tcaagagtcg agtcaccata tcagtagaca agtccaagaa ccacttctcc 240
ctgaacctga gctctgtgac cgccgaggac acggccgtgt attactgtgc gagagattct 300
atgggaagca ctggctggca ttacggtatg gacctctggg gccggggaac cctggtcacc 360
gtctcgagtg gaggcggcgg ttcaggcgga ggtggctctg gcggtggcgg aagtgcacaa 420
tctgccctga ctcagcctcc ctccgcgtcc gggctctctg gacagtcagt caccatctcc 480
tgcagtggaa gcagtagtga cattggtgat tataaccatg tctcctggta ccaacagcac 540
ccaggcaaag cccccaaact catgatttat gacgtcaata agtggccctc aggggtccct 600
gatcgcttct ctggctccaa gtctggcaac acggcctccc tgaccgtctc tgggctccag 660
gctgaggatg aggctgatta ttattgcagc tcatattcag gcattctaaa tttgggtttc 720
ggcggaggga ccaaggtcac cgtcctaggt 750

<210> 67
<211> 753
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 67
gaggtgcagc tgggtgcagtc tggggctgaa gtgaagaagc ctgggtcctc ggtgaaggtc 60
tcctgtaagg cctctggagg caccttcaag acctatgcta tcaattgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggagga atcatccctg tcctgggaac agcaaattac 180
gttcagaagt tccagggcag agtcacgatt accgcggacg aatcgacgac cacagcctac 240
atggagctga ggggcctgag atctgaggac acggccgttt attattgtgc gagaggagag 300

ggcagtggct ggtacgatca ctactacgga ttggacgtct ggggcccaagg aaccctggtc	360
accgtctcga gtggaggcgg cggttcaggc ggaggtggct ctggcggtgg cggaagtgca	420
cagtctgtgc tgacgcagcc gccctcagcg tctgggaccc ccgggcagag ggtcaccatc	480
tcttgttctg gaagcagctc caacatcgga agtaatactg taaactggta ccggcagctc	540
ccaggaacgg cccccaaact cctcatcttt ggtgatgata agcgccctc aggggtccct	600
gaccgattct ctggctccag gtctggcacc tcagtctccc tggccatcag tgggctccag	660
tctgaggatg aggctgacta ttactgtgca gcatgggatg acagcctgaa tggcggggtg	720
ttcggcggag ggaccaagct gaccgtccta ggt	753

<210> 68
 <211> 750
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 68	
gaggtgcagc tggtggagtc tgggggaggc ttggtacagc ctgggggggc cctgagactc	60
tcctgtgcag cctctggatt cacctttagc agctatgcca tgagctgggt ccgccaggct	120
ccaggaaggg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac	180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat	240
ctgcaaatac acagcctgag agccgaggac acggccgtgt attactgtgc gaaagatcat	300
tactatgata gtagtgggta tcttgactac tggggccaag gcaccctggg caccgtctcg	360
agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acttaatttt	420
atgctgactc agccccactc tgtgtcggag tctccgggga agacggtaac catctcctgc	480
acccgcagca gtggcagcat tgccttcgac tatgtgcagt ggtaccagca gcgccggggc	540
agtgccccca cactgtgat ctatgaggat aatcaaagac cctctggggg cctgatcgg	600
ttctctgcct ccatcgacag ctctccaac tctgcctccc tcaccatctc tgactgaag	660
actgaggacg aggctgacta ctactgtcag tcttatgata acagcaattc ttgggtcttc	720
ggcggaggga ccaagctgac cgtcctaggt	750

<210> 69
 <211> 726
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 69
aaggtgcagc tgttgagtc tgggggaggc ttggtacagc ctgggggggtc cctgagactc 60
tcctgtgcag cctctggatt cacctttagc agctatgcc a tgagctgggt cgcagggt 120
ccagggaagg ggctggagt ggtctcagct attagtggta gtggtggtag cacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
ctgcaaatga acagcctgag agccgaggac acggccgtgt attactgtgc gaaagatgat 300
gttcggaatg cttttgatat ctgggggagc gggaccacgg tcaccgtctc gagtggaggc 360
ggcggttcag gcggaggtgg ctctggcggg ggcggaagtg cacagtctgt gctgactcag 420
ccaccctcag tgtccgtgtc cccaggacag acaaccagca tcacctgtc tagagataag 480
ttgggagAAC aatatgttta ctggtatcaa cagaggccag gccagtcccc tattctactc 540
ctctatcaag attccaggcg gccctcatgg atccctgagc gattctctgg ctccaactct 600
ggggacacag ccactctgac catcagcggg acccaggctc tggatgaggc tgactactac 660
tgtcaggcgt gggacaacag ttcctatgta gcattcggcg gagggaccaa ggtcaccgtc 720
ctaggt 726

<210> 70
<211> 735
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 70
gaggtgcagc tgttgagtc tgggggaggc ttggtacagc ctgggggggtc cctgagactc 60
tcctgtgcag cctctggatt cacctttagc agctatgcc a tgagctgggt cgcagggt 120
ccagggaagg ggctggagt ggtctcagct attagtggta gtggtggtag cacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
ctgcaaatga acagcctgag agccgaggac acggccgtgt attactgtgc gagaggaggg 300
gagctgtgga atccatattt agactactgg ggccagggca ccctggtcac cgtctcaggt 360
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actcagcccc cctcagtgtc agtggcccca gggaagacgg ccaggattac ctgtggggga 480
aacgacattg caagtaaaag tgtgcagtgg tttcagcaga agccaggcca ggccccgtga 540
ctggtcatct attatgatag cgaccggccc tcagggatcc ctgagcgatt ctctggctcc 600
aactctgaga acacggccac cctgaccatc agcagggtcg aagcggggga tgaggccgac 660

tattattgtc aggtgtggga tagcagtagt gatcatccgg tgttcggcgg agggaccaag 720
ctgaccgtcc taggt 735

<210> 71
<211> 750
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 71
caggtccagc tgggtgcagtc tggggcagag gtgaaaaagc ccggggagtc tctgaaaatc 60
tcctgtaagg gttctggata cacttttacc aattactgga tcgcctgggt gcgccagatg 120
cccggaaaag gcctggagtg gatgggaatc atttatcctg atgactctga taccagatac 180
aaccctgcct tccaaggcca ggtcaccatg tcagccgaca agtccatcga caccgcctat 240
ctgcagtgga gcagcctgaa ggcccteggac accgccatat attactgtgc gagaccctcg 300
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atgctgactc agccccactc tgtgtcggcg tctccgggga agacgggtcac cctctcctgc 480
accggctcca gtggcagcat tgccagcaac tatgtgcagt ggtaccggca gcgcccgggc 540
agtgccccca cactgtgat ctatgacgat aatcaaagac cctctggggc cctgatcgt 600
ttctctggct ccatcgacag ctctccaac tctgcctccc tcaccatctc tggactgaag 660
actgaggacg aggctgacta ctactgtcag tcttttgata acgacaatca ttgggtgttt 720
ggcggaggga ccaagctgac cgtcctaggt 750

<210> 72
<211> 741
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 72
caggtgcagc tgcaggagtc gggcccagga ctggtgaggt cttcggggat cctgtccctc 60
acctgctctg tctctggtgt ctccgtcagc agtaataact ggtggagttg ggtccgccag 120
acccagggga aggggctgga gtggatcggg gaaatctatc agaccgggac caccaactac 180
aaccctctc tcaagagccg agtcgccata tcactagaca agtcaggaa tcagttctcc 240
ctgattttga agtctgtgac cgccgaggac acggccgtat attactgcgc gagaactagc 300

agcgcctggt ctaacgctga ttggggcaaa gggacaatgg tcaccgtctc gagtggagggc	360
ggcgggttcag gcgaggtgg ctctggcggg ggcggaagtg cactttcttc tgagctgact	420
caggaccct ccgcgtccgg gtctcctgga cagtcagtca gcatctcttg cactggaacc	480
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cccaaactca tgatttctga ggctactaag cggccctcag gggtcctga tcgcttctct	600
ggctccaagt ctggcaacac ggctccctg accgtctctg ggctccaggc tgaagatgag	660
gctgattatt actgcagctc atttgagacc aacaacaatt atctcgtatt cggcggaggg	720
accaagctga ccgtcctagg t	741

<210> 73
 <211> 753
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 73	
caggtgcagc tgcaggagtc gggcccaaga ctggtgaagc cttcacagac cctgtccctc	60
acctgcactg tctctaata ga ctccatcatc agtggcgatt acttctggag ttggatccgc	120
cagccccag ggaagggcct ggagtggatt gggaacatct ttataactgg gagcacctct	180
tacaatccgt ccctcaagag tcgacttacc atgtccctag acacgtccaa gaaccagttc	240
tccctgagat tgagctctgt gactgccgca gacacggccg tatatTTTTg tgccagaggt	300
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gcactttcct atgtgctgac tcagccacc tctgtgtccg tggccccagg aaagacggcc	480
aataaactt gtgggggaaa gaacattgga aataaaagtg tgcaagtggta tcagcagaag	540
ccaggccagg ccctgtggt agtcatgtat tatgacagcg accggccctc agggattcct	600
gagcgattct ctggctccaa cgctgggaac acggccacc tgaccatcga cagggtcgag	660
gccggggatg aggccgatta ttactgtcag gtgtgggata aaagtagtga tcgtccggtc	720
ttcggcggag ggaccaagct gaccgtccta ggt	753

<210> 74
 <211> 735
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 74
caggtccagc tgggtgcagtc tggggctgag gtgaagaagc ctggggcctc agtgaaggtc 60
tcctgcaaga cttctggata caccttcatg gaataactaca tacactgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggctgg agcaatcctg tcaactgggtac gtcaggctct 180
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ttggacctga ggagccttag atctgacgac acggccgttt tttactgcgc gaggcgtcat 300
caacagagct tggattattg gggccaaggc accctgggtca ccgtctcgag tggaggcggc 360
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ccctccgct cggggtctcc tggacagtca gtcaccatct cctgctctgg atacagctcc 480
tccaacatcg ggaataatgc tgtctcctgg taccaacaac tcccaggaac agccccaaa 540
ctcctcattt ttgacaataa taagcgaccc tcagggattc ctgcccgatt ctctggctcc 600
cagtctggca cgacagccac cctgggcatc accggactcc agactgggga cgaggccgat 660
tatttctgcg gaacatggga tagcagcctg agtgcttttg tcttcggatc cgggaccaag 720
gtcacctgcc taggt 735

<210> 75
<211> 744
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 75
atggccgagg tgcagctggt gcagctctggg gctgaggtga agaagcctgg gtcctcggtg 60
aaggtctcct gcaaggcttc tggaggcgagc ttcagcaact atgatttcag ttgggtgcgg 120
caggcccccg gacaagggtc tgagtggatg ggagagatca tcaatgcctt tggttcatca 180
agatacgcac agaaattcca ggacagagtc accattaccg cggacgaatc cgcgagcaca 240
gcctacatgg aactaagagg cctgacatct gaggacacgg ccacttatta ctgtgcgagg 300
gcggaaaggt gggaacttaa tatggctttt gatatgtggg gcagaggaac cctgggtcacc 360
gtctcgagtg gaggcggcgg ttcaggcgga ggtggctctg gcggtggcgg aagtgcacag 420
tctgtgctga ctcagccacc ctcggtgtca gtggccccag ggcagacggc caggatcacc 480
tgtgggggag acaatatagg gagaaaaaat gtccactggt accagcagcg gccaggcctg 540
gccccgtgtt tagtcgtcta tgatgacacc gaccggccct cagggatccc tgagcgattc 600
tctgggtcca actctgggga cacggccacc ctgaccatca cctgggtcga ggccggggat 660

gaagccgact attactgtca actttgggat agtgacacct atgatgtttt attcggcgga 720
 gggaccaagc tgaccgtcct aggt 744

<210> 76
 <211> 741
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 76
 gaggtgcagc tgggtgcagtc tggggctgag gtgaagaagc ctgggtcctc cgtgaaggtc 60
 tcctgcaagt cttctggagg ccccttcagc agctatggta tcagctgggt gcgacaggcc 120
 cccggacaag ggcttgagtg gatgggaggg atcagcccta tctttggtac agcaaactac 180
 gcacagaagt tccagggcag agtcaccatt accgcggacg aatccacaga gacagcctac 240
 atggagctga gtagcctgag gtctgaggac acggccgtgt attactgtgc gagagacgag 300
 tcaccggtcg ggttttatgc tttggatatc tgggggcgag ggaccacggt caccgtctcg 360
 agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc actttcctat 420
 gagctgactc agccaccctc ggtgtcagtg gcccaggac agacggccag gattaactgt 480
 gggggagaca aaattggaag tagaagtgtg cactgggtacc agcagaagcc aggccaggcc 540
 cctgtgatgg tcgtctatga tgatagcgac cggccctcag ggatccctga gcgattctct 600
 ggctccaact ctgggaacac ggcaaccctg accatcagca gtgtcgaagc cggggatgag 660
 gccgactatt attgtcaggt gtgggatggg agtactgatc cctgggtatt cggcggaggg 720
 accaaggtca cgtcctagg t 741

<210> 77
 <211> 765
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 77
 gaagtgcagc tgggtgcagtc tggggctgag atgaagaagc ctgggtcctc ggtgaaggtc 60
 tcctgcaagg catctggagg caccttcagc agctatgctg tcaactgggt gcgacaggcc 120
 cctggacaag ggcttgaatg gatgggagga atcatcccta tttttgatac ttcgaactac 180
 gcacagaagt tccagggcag actcacgatg accgcggacg actccacgaa cacagcctac 240
 atggaactga ggagcctgag atctgaggac acggccgtat attactgtgc gagagggggc 300

ccgaggggaa cagttatggc attcagctct tactactttg acttatgggg ccagggcacc	360
ctggtcaccg tctcgagtgg aggcggcggt tcaggcggag gtggctctgg cggtggcgga	420
agtgcactta attttatgct gactcagccc cactctgtgt cggagtctcc ggggaagaca	480
gtaattatct cctgcgccgg cagcgggtggc aacattgcc acaactatgt gcagtgggtac	540
caacatcgcc cgggcagtgc cccattact gtgatctatg aggataatca aagaccctct	600
ggagtccctg atcgcttctc tggtccgctc gacagctcct ccaactctgc ctccctcacc	660
atctctggac tgcagactga ggacgaagct gactactact gtcactctta tgacaacacc	720
gatcaggggg tcttcggaac tgggaccaag gtcaccgtcc taggt	765

<210> 78
 <211> 759
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 78	
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ccagggaaagg gcctggagtg ggtctcaagt attagttgga gtgggtggaac tatagggtat	180
gcggactctg tgaagggccg attcaccgtc tccagagaca acgccaagaa ctccctgtat	240
ctgcaaataa acagtgtgag agctgaggac acggccttat attactgtgc aaaagacagg	300
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ctggtcaccg tctcgagtgg aggcggcggt tcaggcggag gtggctctgg cggtggcgga	420
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caacaacacc caggcaaagc ccccaaactc atgatttatg aggactataa gcgggcctca	600
ggggtttcta atcacttctc tggtccaag tctggcaaca cggcctccct gacaatctct	660
gggctccagg ctgaggacga ggctgattat tactgtctct catatgcagg tagtagcgct	720
tgggtgttcg gcggagggac caaggtcacc gtccctaggt	759

<210> 79
 <211> 735
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 79
gaagtgcagc tgggtgcagtc tggggctgag gtgaggaagc ctggatcctc gatgaaggtc 60
tcctgcaagg cctctggcga caccttcagg aactttgctt tcagttgggt gcgacaggcc 120
cctggacaag gacttgaatg gatgggggga gtcattccctt tggttgggtcc accaaagtac 180
gtcagaagt tccagggcag actcaccatt accgcggacg agtccacgag cacctcctac 240
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gtttatgctc cctttgacaa atggggccaa ggaaccctgg tcaccgtctc gagtggaggc 360
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ccgccctcag tgtctgaagc cccagggcag agggtcacca tctcctgttc tggaagcagc 480
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ctcctcatct attataatga tctgctgccc tcaggggtct ctgaccgatt ctctggctcc 600
aagtctggca cctcagcctc cctggccatc agtgggctcc agtctgagga tgaggctgat 660
tattactgtg cagcatggga tgacagcctg aatggctggg tggtcggcgg agggaccaag 720
gtcaccgtcc taggt 735

<210> 80
<211> 753
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 80
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tcctgtaagg cctctggagg caccttcaag acctatgcta tcaattgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggagga atcatccctg tcctgggaac agcaaattac 180
gttcagaagt tccagggcag agtcacgatt accgcggacg aatcgacgac cacagcctac 240
atggagctga ggggcctgag atctgaggac acggccgttt attattgtgc gagaggagag 300
ggcagtggtt ggtacgatca ctactacgga ttggacgtct ggggccaagg aaccctggtc 360
accgtctcga gtggaggcgg cggttcaggc ggaggtggct ctggcggtgg cggaagtgca 420
cagtctgtgc tgacgcagcc gccctcagcg tctgggacct ccgggcagag ggtcaccatc 480
tcttgttctg gaagcagctc caacatcgga agtaatactg taaactggta ccggcagctc 540
ccaggaacgg cccccaaact cctcatcttt ggtgatgac agcggccctc aggggtccct 600
gaccgattct ctggctccag gtctggcacc tcagtctccc tggccatcag tgggctccag 660

tctgaggatg aggctgacta ttactgtgca gcatgggatg acagcctgaa tggcgggggtg 720
 ttcggcggag ggaccaagct gaccgtccta ggt 753

<210> 81
 <211> 744
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 81
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 acctgcgctg tctctggtgg ctccatcagc actagtact ggtggagttg ggtccgccgg 120
 cccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac 180
 caccgcgtac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc 240
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 ggccatagtg ggagttaccc tcttgactac tggggcaaag gaaccctggt caccgtctcg 360
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 ctgactcagc cgtcctcagt gtctgcggcc ccaggacaga aggtcaccat ctctgtctct 480
 ggaagcagct ccaacattgg gaataattat gtatcctggt accagcagct ccaggaaca 540
 gccccaaac tcctcattta tgacaataat aagcgaccct cagggattcc tgaccgattc 600
 tctggctcca ggtctggcac gtcagccacc ctgggcatca ccggactcca gactggggac 660
 gaggccgatt attactgcgg aacatgggat agcagcctga gtgctgtagt cttcggaact 720
 gggaccaagc tgaccgtcct aggt 744

<210> 82
 <211> 750
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 82
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 acctgcgctg tctctggtgg ctccatcagc agtactaact ggtggagttg ggtccgccag 120
 cccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac 180
 aaccgcgtcc tcaagagtcg agtcaccata tcagtagaca agtccaagaa ccacttctcc 240
 ctgaacctga gctctgtgac cgccgcggaac acggccgtgt attactgtgc gagagattct 300

atgggaagca ctggctggca ttacggtatg gacctctggg gcaaaggcac cctggtcacc	360
gtctcgagtg gagggcgcgg ttcaggcgga ggtggctctg gcgggtggcgg aagtgcacag	420
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gatcgcttct ctggctccaa gtctggcaac acggcctccc tgaccatctc tgggctccag	660
gctgacgacg aggctgatta ttactgcagc tcatatacaa gcagcagctc tctggtgttc	720
ggcggaggga ccaagctgac cgtcctaggt	750

<210> 83
 <211> 720
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 83	
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tcctgtgcag cctctggatt caccttcagt agttatacca tgaactgggt ccgccaggct	120
ccagggaagg ggctggagtg ggtttcatatc attagtagta gtggtagtgc cacatactac	180
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ctgcaaatac acagcctgag agccgaggac acggccgtgt attactgtgc gagagggtac	300
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ggttcaggcg gaggtggcag cggcggtggc ggatcgggca tcgtgatgac ccagtctcct	420
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attagtagct ggttggcctg gtatcagcag aaaccaggga gagcccctaa ggtcttgatc	540
tataaggcat ctactttaga aagtggggtc ccatcaaggt tcagcggcag tggatctggg	600
acagatttca ctctcaccat cagcagctctg caacctgaag attttgcaac ttactactgt	660
caacagagtt acagtacccc gtggacgttc ggccaaggga ccaagctgga gatcaaacgt	720

<210> 84
 <211> 735
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 84

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ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac	180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat	240
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gcagtggcag gtattgacta ctggggcccg gggacaatgg tcaccgtctc gagtggaggc	360
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aagtctggca cctcagcctc cctggccatc agtgggctcc ggtccgagga tgaggctgat	660
tattattgtg cagcatggga tgacaccctg gatgcttatg tcttcgcagc tgggaccaag	720
ctgaccgtcc taggt	735

<210> 85
 <211> 753
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 85	
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<210> 86
 <211> 747
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 86
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<210> 87
 <211> 732
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 87
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<210> 88
 <211> 750
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 88	
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<210> 89
 <211> 750
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 89

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<210> 90
 <211> 753
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

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aatcgcttct ctggctccaa gtctggcaac acggcctccc tgaccatctc tgggctccag	660
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ttcggcggag ggaccaagct gaccgtccta ggt 753

<210> 91
<211> 744
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 91
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<210> 92
<211> 735
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 92
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ctgaccgtcc taggt	735

<210> 93
 <211> 756
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 93	
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gcacagaagt tccaggacag agtcactatt accgcggacg agtccacgag cacagcctac	240
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gaagccgggg atgaggccga ctattactgt caggtgtggg atactaacag tgatcatgtg	720
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<210> 94
 <211> 747
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 94

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<210> 95
 <211> 744
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

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aaaatgggta	cacaatctac
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gcacaggagt	tccagggcag
aatcaccatg	accgaggaca
catctacaga	cacagtctac
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agctaccctg	accatcactg
gggctcaggc	ggaggatgag
660	
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720	

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<210> 96
<211> 753
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 96
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<210> 97
<211> 753
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<213> artificial

<220>
<223> phage display generated human antibody

<400> 97
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<210> 98
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<212> DNA
<213> artificial

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<220>
<223> phage display generated human antibody

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<400> 98
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<210> 99
<211> 741
<212> DNA
<213> artificial

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<220>
<223> phage display generated human antibody

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<400> 99

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<210> 100
 <211> 750
 <212> DNA
 <213> artificial

<220>
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<400> 100	
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<210> 101
<211> 738
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 101
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aaccctgcc tcaagagtcg agtcgacata tcaatggaca agtccaagaa tcagttctcc 240
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ggcggcggtt caggcggagg tggctctggc ggtggcgga gtgcacaggc tgtgctgact 420
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cccaaactcc tcattctatgg taacagcaat cggccctcag ggtccctga ccgattctct 600
ggctccaagt ctggcacctc agcctccctg gccatcactg ggctccaggc tgaggatgag 660
gctgattatt actgccagtc ctatgacagc agcctgagtg gtgtcttcgg aactgggacc 720
cagctcaccg ttttaagt 738

<210> 102
<211> 747
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 102
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ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac 180
caccctcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa ccagttctcc 240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg 300
ggccatagtg ggagttaccc tcttgactac tggggccaag gcaccctggt caccgtctcg 360

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agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acttaatttt 420
atgctgactc agccccactc tgtgtcggag tctccgggga agacggtaac catctcctgc 480
acccgcagca gtggcagcat tgccagcaag tatgtgcagt ggtaccagca gcgcccgggc 540
agtgccccca ccagtgtcat ctatgaggat aaccaaagac cctctggggg cctgatcgg 600
ttctctggct ccatcgacag cgctccaac tctgcctccc tcaccatctc tggactgaag 660
actgaggacg aggctgacta ctactgtcag tctgatgatg gcagcagtgt ggttttcggc 720
ggagggacca aggtcacctg cctaggt 747

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<210> 103
<211> 771
<212> DNA
<213> artificial

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<220>
<223> phage display generated human antibody

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<400> 103
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cctggacaag ggcctgagtg gatgggatgg atcggcattt acaatggtaa cacagactat 180
gcacagaagt tccagggcag agtcaccatg accacagaca aatccacgag cacagcctac 240
atggagctga ggagcctgag atctgacgac acggccgtct attactgtgc gagagattcc 300
gtggggagta tatcagtggc tggtagcatg caatactact acttcgctat ggacgtcttg 360
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ggcgggtggc gaagtgcaca gtctgtgttg acgcagccgc cctccgcgtc cgggtctcct 480
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gtctcgtggg accaacaaca ccagccaaa ggccccaaac tcatcattta tgcggtcagt 600
gagcggccct caggtgtccc taatcgattc tctggctcca agtctggcaa cacggcctcc 660
ctgaccgtct ccgggctccg ggctgaggat gaggtcatt attattgcag ctcatagca 720
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<210> 104
<211> 741
<212> DNA
<213> artificial

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<220>
<223> phage display generated human antibody

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<400> 104

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acctgcgctg tctctggtgg ctccatcagc actagtact ggtggagttg ggtccgccgg	120
ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
cacccgtcac tcaagagtcg agtcaccata tcaactgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgaggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggccgag ggacaatggg caccgtctcg	360
agtggaggcg gcggttcagg cggagggtggc tctggcggtg gcggaagtgc acagtctgtg	420
ctgacgcagc cgccctcagc gtctgggacc cccggacaga gggtcacat ctcttggtct	480
ggaagcttct ccaatatcgg aggtaattat gtgaactggg accagcagct ccaggaacg	540
gcccccaaac tcctcatcta tgggaataat cagcggccct caggggtccc tgaccgattc	600
tctagtttta agtcgggcac ctccagctcc ctggccatca gtgggctccg gtccgaggat	660
gaggctgatt attactgtgc aacatgggat gacagccaga ctgttttatt cggcggaggg	720
accaagctga ccgtcctagg t	741

<210> 105

<211> 738

<212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 105

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ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac	180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat	240
ctgcaaatga acagcctgag agccgaggac acggccgtgt attactgtgc gagatggaat	300
ggtttcctga cagctcatga ctccctggggc cgaggggacaa tggtcaccgt ctcgagtgga	360
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cagccaccct cagcgtctgg gacccccggg cagaggggtca ccatctcttg ttctggaagc	480
agttccaaca tcggaactaa ttatgtgtac tggtagcaaac aattcccagg aacggcccc	540
aaactcctca tctataggag taatcggcgg ccctcagggg tccctgaccg attctctgcc	600
tccaagtctg gcacctcagc ctccctgggc atcagtgggc tccggtccga agatgaggct	660
gactattact gtgcagcatg ggatgacaga ctgaatggcg agatgttcgg cggagggacc	720

aaggtcaccg tcctaggt

738

<210> 106
<211> 729
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<220>
<221> misc_feature
<222> (63)..(63)
<223> n is a, c, g, or t

<400> 106
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ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
ctgcaaatac acagcctgag agccgaggac acggccgtgt attactgtgc gagatgggtcc 300
gggcgggtttt atgacttctg ggggcaaggg accacggtca cctgtctcagc tggaggcggc 360
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ccctcagcgt ctgggacccc cgggcagagg atcaccatct cttgttccgg aagcagctcc 480
aacatcgga gtaattatgt atactggtag cagcaactcc caggaacggc ccccaaaatc 540
ctcatctata ggaataatca ggggccctca ggggtccctg agcgattctc tggctccaag 600
tctggcacct cagcctccct ggccatcagt gggctccggt ccgaggatga ggctgactac 660
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gtcctaggt 729

<210> 107
<211> 738
<212> DNA
<213> artificial

<220>
<223> phage display generated human antibody

<400> 107
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tcctgtgcag cctctggatt cacctttagc agctatgccca tgagctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac 180

gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat	240
ctgcaaatga acagcctgag agccgaggac acggccgtgt attactgtgc gagagataag	300
ggttatagtg gctttgacta ctggggcccg ggaaccctgg tcaccgtctc gaggaggagc	360
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tccaacatcg gacgtcatac tgttaactgg taccagcaac tcccaggaac ggcccccaaa	540
ctgctcatct atagcaataa tcagcggccc tcaggggtcc ctgaccgatt ctctggctcc	600
aagtctggca cctcagcctc cctggccatc agtgggctcc agtctgaaga tgagggtcat	660
tatcactgtg cagcatggga tgacaccctg aatggtgatg tggatttcgg cggagggacc	720
aaggtcaccg tcctaggt	738

<210> 108
 <211> 753
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 108	
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ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
cacccgtcac tcaagagtcg agtcaccata tcaactgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggcaagg gcaccctggt caccgtctcg	360
agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acttaatttt	420
atgctgactc agccccactc tgtgtcggag tctccgggga agacggtaac catctcctgc	480
accgcagca gtggcagcat tgccagcaac tatgtgcagt ggtaccagca gcgcccgggc	540
agttcccca ccaactgtgat ctatgaggat aaccaaagac cctctggggg cctgatcgg	600
ttctctggct ccatcgacag ctctccaac tctgcctccc tcaccatctc tggactgaag	660
actgaggacg aggctgacta ctactgtcag tcttatgata gcagcaaccc ttatgtggta	720
ttcggcggag ggaccaagct gaccgtccta ggt	753

<210> 109
 <211> 753
 <212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 109

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cccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
cacccgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgaggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc ccttgactac tggggccagg gcaccctggt caccgtctcg	360
agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acttaatttt	420
atgctgactc agccccactc tgtgtcgggg tctccgggga ggacggtaac catctcctgc	480
acccgcagca gtggcagcat tgccaccaac tatgtgcagt ggtaccagca gcgccccggc	540
agttcccca ccattgtgat ctatgaagat aaccaaagac cctctggggg cctgatcgc	600
ttctctggct ccatcgacac ctctccaac tctgcctccc tcaccatctc tggactgaag	660
actgaggacg aggctgacta ctactgtcag tcttatgata gcaacaatct gggggtggt	720
tttggcgagg ggaccagct caccgtttta agt	753

<210> 110

<211> 744

<212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 110

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cccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
cacccgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgaggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggccagg gcaccctggt caccgtctcg	360
agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acagtctgtc	420
gtgacgcagc cgccctcagt gtctgcgggc ccaggacaga aggtcaccat ctctgtctct	480
ggaagcagct ccaacattgg gaataattat gtatcctggt ataaacaact cccaggaaca	540

gcccccaaac	tctcatcta	tgacaataat	aagcgaccct	ctgggattcc	tgaccgattc	600
tctggctcca	agtctggcac	gtcagccacc	ctgggcataa	ccggactcca	gactggggac	660
gaggccgatt	attactgcgg	aacttgggat	agcagcctga	gtggcggtgt	gttcggcgga	720
gggaccaagc	tgaccgtcct	aggt				744

<210> 111
 <211> 753
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 111		
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ctggtgaagc	cttcggggac	cctgtccctc
		60
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actagtgtgact	ggtggagttg	ggtccgcccgg
		120
ccccagggga	aggggctgga	gtggattggg
gaaatctatc	atagtgggag	caccaactac
		180
caccgcgtcac	tcaagagtcg	agtcaccata
tcaacttgaca	aatcgaagaa	tcagttctcc
		240
ctgaaactga	gctctgtgac	cgccgcggac
acggccgtgt	attactgtgc	gagagagggg
		300
ggccatagt	ggagttacc	tcttgactac
tggggccgag	gaaccctggt	caccgtctcg
		360
agtggaggcg	gcggttcagg	cggagggtgg
tctggcggtg	gcggaagtgc	acttaatttt
		420
atgctgactc	agccccactc	tgtgtcggag
tctccgggga	agacggtaac	catctcctgc
		480
acccgcagca	gtggcagcat	tgccagcaac
tatgtgcagt	ggtaccaaca	gcgcccgggc
		540
agttcccca	ccactttgat	ctatgacgat
aaccagagac	cctctggggg	ccctgatcgg
		600
ttctctggct	ccatcgacag	ctcctccaac
tctgcctccc	tcaccatctc	tggactgaag
		660
actgaggacg	aggctgacta	ctactgtcag
tcttatgaca	gcagcaatct	gggggtgggc
		720
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ggt		
		753

<210> 112
 <211> 750
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 112		
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actagtgtgact	ggtggagttg	ggtccgcccgg
		120
ccccagggga	aggggctgga	gtggattggg
gaaatctatc	atagtgggag	caccaactac
		180

cacccgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggccggg gaaccctggg cacccgtctcg	360
agtggaggcg gcggttcagg cggagggtggc tctggcggtg gcggaagtgc acttaatttt	420
atgctgactc agccccactc tgtgtcggag tctccgggga agacggcaac catctcctgc	480
accggcagcg gtggcagcat tgccagaagc tatgtgcagt ggtaccagca gcgccgggc	540
cgtgccccca gcatcggttat ctatgaggat tatcaaaggc cctctggcgt ccctgatcgg	600
ttctctggct ccatcgacag ctctccaat tctgcctctc tcaccatcac tgggctgaag	660
actgacgacg aggctgacta ctactgtcag tcctctgacg acaacaacaa tgtcgtcttc	720
ggcggaggga ccaaggtcac cgtcctaggt	750

<210> 113
 <211> 744
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 113	
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ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
cacccgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggcaggg gaaccctggg cacccgtctcg	360
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ctgactcagc cgtcctcagt gtctgcggcc ccaggacaga aggtcaccat ctctgtctct	480
ggaagcagct ccaacattgg gaataattat gtatcctggg accagcagct cccaggaaca	540
gccccaaac tcctcattta tgacaataat gagcgaccct cagggattcc tgaccgattc	600
tctggctcca agtctggcac gtcagccacc ctgggcatca ccggactcca gactggggac	660
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gggaccaagg tcaccgtcct aggt	744

<210> 114
 <211> 747
 <212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 114

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ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
caccgcgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggccagg gaaccctggt caccgtctcg	360
agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acttaatttt	420
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actgaggacg aggctgatta ctattgtcaa tcttctgatt ccaacagggt ggtgttcggc	720
ggagggacca aggtcacctg cctaggt	747

<210> 115

<211> 723

<212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 115

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ccagggcagg gactggagta cattgggtat atctattaca gtgggaccac cgactacaac	180
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ggttcaggcg gaggtggctc tggcggtggc ggaagtgcac tttcctatga gctgactcag	420
ccaccctcag tgtccgtgtc ccccgacag acagccagca tcacctgctc tggagataaa	480
ttgggggata aatttgcttc ctggtatcaa cagaaggcag gccagtcccc tgtgctggtc	540

atctatcgag ataccaagcg cccctcaggg atccctgagc gattctcttg ctccaactct	600
gggaacacag ccactctcac catcagcggg acccaggcta tggatgaggc tgattattac	660
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ggt	723

<210> 116
 <211> 753
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 116	
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acctgcgctg tctctggtgg ctccatcagc actagtgact ggtggagttg ggtccgccgg	120
ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
caccgctcac tcaagagtcg agtcaccata tcaacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgaggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttacc ctttgactac tggggccaag gaaccctggt caccgtctcg	360
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atgctgactc agccccactc tgtgtcggag tctccgggga agacggtaac catctcctgc	480
accgcagca gtggcagcat tgacaacaac tatgtccagt ggtaccagca gcgcccgggc	540
agttcccca ctactgtgat ctttgaggat aaccaaagac cctctggggg cctgatcgc	600
ttctctggct ccatcgacag ctccccaac tctgcctccc tcaccatctc tggactgaag	660
actgaggacg aggctgacta ctactgtcag tcttatgata gccacaatca ggggggtggc	720
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<210> 117
 <211> 744
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 117	
cagctgcagc tgcaggagtc cggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctggtgg ctccatcagc actagtgact ggtggagttg ggtccgccgg	120
ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180

cacccgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggccgag gaaccctggg caccgtctcg	360
agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acagtctgtg	420
ctgacgcagc cgccctcagt gtctgcggcc ccaggacaga aggtcaccat ctctgtctct	480
ggaagtagct ccaacattgg gaatagttat gtatcgtggg acaagcagct cccaggtaca	540
gccccaaag tcctcattta tgacaaccag aagcgatcct cagggatccc tgaccgattc	600
tctgcctcca agtctggcac gtcagccacc ctgggcatca ccggactccg gactgaggac	660
gaggccgatt attactgcgg aacatgggat accagcctga gtgcggtggg gttcggcgga	720
gggaccaagc tgaccgtcct aggt	744

<210> 118
 <211> 744
 <212> DNA
 <213> artificial

<220>
 <223> phage display generated human antibody

<400> 118	
gagggtgcagc tggtggagtc tggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctggtgg ctccatcagc actagtgact ggtggagttg ggtccgccgg	120
ccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
cacccgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggccggg gaaccctggg caccgtctcg	360
agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acagtctgtc	420
gtgacgcagc cgccctcagt atctgcggcc ccaggacaga aggtcaccat ctctgtctct	480
ggaaacttct ccaacattga atataattat gtatcgtggg accagcacct cccaggaaca	540
gccccaaac tcctcatttt tgacaataat cagcgaccct catggattcc tgaccgattc	600
tctggctcca agtctggcac gtcagccacc ctgggcatca ccgggctcca gactggggac	660
gaggccgatt actactgcgg aacatgggat agcagcctga atgctggggg gttcggcgga	720
gggaccaagg tcaccgtcct aggt	744

<210> 119
 <211> 736
 <212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 119

gaggtgcagc tgttgagtc tgggggaggc ttggtacggc ctgggggggtc cctgagactc	60
tcctgtgcag cctctggatt cacctttagc agctatgccca tgagctgggt ccgccaggct	120
ccaggaagg ggctggagt ggtctcagct attagtggta gtggtggtag cacatactac	180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat	240
ctgcaaata acagcctgag agccgaggac acggccgtgt attactgtgc gaaagatcga	300
aggggtgtcc tcgaccctg gggcaaagg acaatgggtca ccgtctcgag tggaggcggc	360
ggttcaggcg gaggtggctc tggcggtggc ggaagtgcac agtctgtgct gacgcagccg	420
ccctcagtgt ctggggcccc agggcagagg gtcaccatct cctgcactgg gagcagctcc	480
aacatcgggg caggctatga tgtacactgg taccagcacc ttccaggaac agccccaga	540
ctcctcatct atggtaacag caatcgccc tcaggggtcc ctgaccgatt ctctggctcc	600
aagtctggca cctcagcctc cctggccatc tctgggctcc aggctgagga tgaggctgat	660
tattactgcc agtcctatga cagcagcctg agtgattggg tgttcggcgg agggaccaag	720
gtcaccgtcc taggtc	736

<210> 120

<211> 750

<212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 120

cagctgcagc tgcaggagtc cggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctgggtg ctccatcagc actagtgact ggtggagttg ggtccgcccg	120
ccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
caccgcgtac tcaagagtcg agtcaccata tcaactgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgaggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggcaggg gcaccctggt caccgtctcg	360
agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acttaatttt	420
atgctgactc agccccactc tgtgtcggag tctccgggga agacggtaac catctcctgc	480
gcccgcagca gtggcagcat tgccagcaac tatgtgcagt ggtaccagca gcgcccgggc	540

agttccccc cacttttgat ctatgaggat aggcaaagac cctctgggggt cctgatcgg 600
 ttctctgggt ccatcgacag ctctccaac tctgcctccc tcaccatctc tggactgaag 660
 actgaggacg aggctgacta ctactgtcag tcttatgata gcagcgatca tgtggtcttc 720
 ggcggaggga ccaagctgac cgtcctaggt 750

<210> 121
 <211> 23
 <212> DNA
 <213> artificial

<220>
 <223> mutagenesis primer

<400> 121
 cagggcaggg tcacaatggc cag 23

<210> 122
 <211> 23
 <212> DNA
 <213> artificial

<220>
 <223> mutagenesis primer

<400> 122
 ctggccattg tgaccctgcc ctg 23

<210> 123
 <211> 39
 <212> DNA
 <213> artificial

<220>
 <223> PCR Primer

<400> 123
 ctctccacag gcgcgcactc ccaggtgcag ctgcaggag 39

<210> 124
 <211> 39
 <212> DNA
 <213> artificial

<220>
 <223> PCR Primer

<400> 124
 ctctccacag gcgcgcactc cgaggtgcag ctgttggag 39

<210> 125
 <211> 39
 <212> DNA

<213> artificial
 <220>
 <223> PCR Primer
 <400> 125
 ctctccacag gcgcgcactc ccaggtgcc a gctggtgca 39

<210> 126
 <211> 45
 <212> DNA
 <213> artificial
 <220>
 <223> PCR Primer
 <400> 126
 ctctccacag gcgcgcactc ccagctgcag ctgcaggagt cgggc 45

<210> 127
 <211> 21
 <212> DNA
 <213> artificial
 <220>
 <223> PCR Primer
 <400> 127
 accgccagag ccacctccgc c 21

<210> 128
 <211> 39
 <212> DNA
 <213> artificial
 <220>
 <223> PCR Primer
 <400> 128
 ctccacaggc gtgcactccc aggctgtgct gactcagcc 39

<210> 129
 <211> 41
 <212> DNA
 <213> artificial
 <220>
 <223> PCR Primer
 <400> 129
 ctctccacag gcgtgcactc ccagtctgtg ctgactcagc c 41

<210> 130
 <211> 35
 <212> DNA

<213> artificial
 <220>
 <223> PCR Primer
 <400> 130
 ccacaggcgt gcactcctcc tatgagctga ctcag 35
 <210> 131
 <211> 37
 <212> DNA
 <213> artificial
 <220>
 <223> PCR Primer
 <400> 131
 ctccacaggc gtgcactcca attttatgct gactcag 37
 <210> 132
 <211> 60
 <212> DNA
 <213> artificial
 <220>
 <223> PCR Primer
 <400> 132
 ctattcctta attaagttag atctattctg actcacctag gacggtcagc ttggtccctc 60
 <210> 133
 <211> 58
 <212> DNA
 <213> artificial
 <220>
 <223> PCR Primer
 <400> 133
 ctattcctta attaagttag atctattctg actcacctag gacggtgacc ttggtccc 58
 <210> 134
 <211> 61
 <212> DNA
 <213> artificial
 <220>
 <223> PCR Primer
 <400> 134
 ctattcctta attaagttag atctattctg actcacctag gacggtcagc ttggtcccac 60
 t 61
 <210> 135

<211> 61
 <212> DNA
 <213> artificial

 <220>
 <223> PCR Primer

 <400> 135
 ctattcctta attaagtttag atctattctg actcacctag gacggtgacc ttgggtcccag 60
 t 61

 <210> 136
 <211> 58
 <212> DNA
 <213> artificial

 <220>
 <223> PCR Primer

 <400> 136
 ctattcctta attaagtttag atctattctg actcacctag gacggtgagc tgggtccc 58

 <210> 137
 <211> 19
 <212> DNA
 <213> artificial

 <220>
 <223> PCR Primer

 <400> 137
 gcaggcttga ggtctggac 19

 <210> 138
 <211> 25
 <212> DNA
 <213> artificial

 <220>
 <223> PCR Primer

 <400> 138
 taattatagc aaggagacca agaag 25

 <210> 139
 <211> 25
 <212> DNA
 <213> artificial

 <220>
 <223> PCR Primer

 <400> 139
 cagaggtgct cttggaggag ggtgc 25

<210> 140
 <211> 120
 <212> PRT
 <213> artificial

<220>
 <223> V_region

<400> 140

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ser Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val Lys
 50 55 60

Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu
 65 70 75 80

Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala
 85 90 95

Lys Asp His Tyr Tyr Asp Ser Ser Gly Tyr Leu Asp Tyr Trp Gly Gln
 100 105 110

Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 141
 <211> 111
 <212> PRT
 <213> artificial

<220>
 <223> V_region

<400> 141

Asn Phe Met Leu Thr Gln Pro His Ser Val Ser Glu Ser Pro Gly Lys
 1 5 10 15

Thr Val Thr Ile Ser Cys Thr Arg Ser Ser Gly Ser Ile Ala Phe Asp
 20 25 30

Tyr Val Gln Trp Tyr Gln Gln Arg Pro Gly Ser Ala Pro Thr Thr Val
 35 40 45

Ile Tyr Glu Asp Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser
 50 55 60

Ala Ser Ile Asp Ser Ser Ser Asn Ser Ala Ser Leu Thr Ile Ser Ala
 65 70 75 80

Leu Lys Thr Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Asn
 85 90 95

Ser Asn Ser Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
 100 105 110

<210> 142
 <211> 119
 <212> PRT
 <213> artificial

<220>
 <223> V_region

<400> 142

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly Lys Gly
 100 105 110

Thr Leu Val Thr Val Ser Ser

115

<210> 143
<211> 112
<212> PRT
<213> artificial

<220>
<223> V_region

<400> 143

Asn Phe Met Leu Thr Gln Pro His Ser Val Ser Glu Ser Pro Gly Lys
1 5 10 15

Thr Val Thr Ile Ser Cys Thr Arg Ser Ser Gly Ser Ile Ala Ser Asn
20 25 30

Tyr Val Gln Trp Tyr Gln Gln Arg Pro Gly Ser Ser Pro Thr Thr Val
35 40 45

Ile Tyr Glu Asp Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser
50 55 60

Gly Ser Ile Asp Ser Ser Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly
65 70 75 80

Leu Lys Thr Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser
85 90 95

Ser Asn Gln Gly Val Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
100 105 110

<210> 144
<211> 125
<212> PRT
<213> artificial

<220>
<223> V_region

<400> 144

Gln Val Gln Leu Val Gln Ser Gly Pro Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Glu Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Asp
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Pro Glu Trp Met

35 40 45
 Gly Trp Ile Asn Pro Gln Thr Gly Val Thr Lys Tyr Ala Gln Lys Phe
 50 55 60
 Gln Gly Arg Val Thr Met Ala Arg Asp Thr Ser Ile Asn Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Arg Gly Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Val Arg Glu Asp His Asn Tyr Asp Leu Trp Ser Ala Tyr Asn Gly Leu
 100 105 110
 Asp Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120 125

 <210> 145
 <211> 111
 <212> PRT
 <213> artificial

 <220>
 <223> V_region

 <400> 145

 Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser Ala Ala Pro Gly Gln
 1 5 10 15
 Lys Val Thr Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn Asn
 20 25 30
 His Val Ser Trp Tyr Gln Gln Leu Ala Gly Thr Ala Pro Lys Leu Leu
 35 40 45
 Ile Phe Asp Asn Asp Lys Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser
 50 55 60
 Gly Ser Lys Ser Gly Thr Ser Ala Thr Leu Gly Ile Thr Gly Leu Gln
 65 70 75 80
 Thr Gly Asp Glu Ala Asp Tyr Tyr Cys Gly Thr Trp Asp Lys Ser Pro
 85 90 95
 Thr Asp Ile Tyr Val Phe Gly Ser Gly Thr Lys Leu Thr Val Leu
 100 105 110

<210> 146
 <211> 121
 <212> PRT
 <213> artificial

<220>
 <223> V_region

<400> 146

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
 100 105 110

Arg Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 147
 <211> 111
 <212> PRT
 <213> artificial

<220>
 <223> V_region

<400> 147

Asn Phe Met Leu Thr Gln Pro His Ser Val Ser Glu Ser Pro Gly Lys
 1 5 10 15

Thr Val Thr Ile Ser Cys Ala Arg Ser Ser Gly Ser Ile Ala Ser Asn
 20 25 30

Tyr Val Gln Trp Tyr Gln Gln Arg Pro Gly Ser Ser Pro Thr Thr Leu
 35 40 45

Ile Tyr Glu Asp Arg Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser
 50 55 60

Gly Ser Ile Asp Ser Ser Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly
 65 70 75 80

Leu Lys Thr Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser
 85 90 95

Ser Asp His Val Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
 100 105 110

<210> 148
 <211> 119
 <212> PRT
 <213> artificial

<220>
 <223> V_region

<400> 148

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Ala
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Ser Asn
 20 25 30

His Trp Trp Ser Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Glu Ile Tyr Thr Tyr Gly Gly Ala Asn Tyr Asn Pro Ser Leu
 50 55 60

Lys Ser Arg Val Asp Ile Ser Met Asp Lys Ser Lys Asn Gln Phe Ser
 65 70 75 80

Leu His Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Gly Arg His Leu Thr Gly Tyr Asp Cys Phe Asp Ile Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Ser Ser

115

<210> 149
<211> 110
<212> PRT
<213> artificial

<220>
<223> V_region

<400> 149

Gln Ala Val Leu Thr Gln Pro Ser Ser Val Ser Gly Ala Pro Gly Gln
1 5 10 15

Arg Val Thr Ile Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Ala Gly
20 25 30

Tyr Asp Val His Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu
35 40 45

Leu Ile Tyr Gly Asn Ser Asn Arg Pro Ser Gly Val Pro Asp Arg Phe
50 55 60

Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu
65 70 75 80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser
85 90 95

Leu Ser Gly Val Phe Gly Thr Gly Thr Gln Leu Thr Val Leu
100 105 110

<210> 150
<211> 121
<212> PRT
<213> artificial

<220>
<223> V_region

<400> 150

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser
20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp

35 40 45
 Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu
 50 55 60
 Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser
 65 70 75 80
 Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly
 100 105 110
 Arg Gly Thr Leu Val Thr Val Ser Ser
 115 120
 <210> 151
 <211> 111
 <212> PRT
 <213> artificial
 <220>
 <223> V_region
 <400> 151
 Asn Phe Met Leu Thr Gln Pro His Ser Val Ser Glu Ser Pro Gly Lys
 1 5 10 15
 Thr Ala Thr Ile Ser Cys Thr Gly Ser Gly Gly Ser Ile Ala Arg Ser
 20 25 30
 Tyr Val Gln Trp Tyr Gln Gln Arg Pro Gly Arg Ala Pro Ser Ile Val
 35 40 45
 Ile Tyr Glu Asp Tyr Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser
 50 55 60
 Gly Ser Ile Asp Ser Ser Ser Asn Ser Ala Ser Leu Thr Ile Thr Gly
 65 70 75 80
 Leu Lys Thr Asp Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Ser Asp Asp
 85 90 95
 Asn Asn Asn Val Val Phe Gly Gly Gly Thr Lys Val Thr Val Leu
 100 105 110

<210> 152
 <211> 117
 <212> PRT
 <213> artificial

<220>
 <223> V_region

<400> 152

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1 5 10 15

Thr Leu Ser Leu Thr Cys Asn Val Ser Gly Gly Ser Ile Arg Asn Tyr
 20 25 30

Phe Trp Ser Trp Ile Arg Gln Pro Pro Gly Gln Gly Leu Glu Tyr Ile
 35 40 45

Gly Tyr Ile Tyr Tyr Ser Gly Thr Thr Asp Tyr Asn Pro Ser Leu Lys
 50 55 60

Gly Arg Val Thr Ile Ser Leu Asp Thr Ser Lys Thr Gln Phe Ser Leu
 65 70 75 80

Lys Leu Asn Ser Val Thr Ala Ala Asp Thr Ala Phe Tyr Tyr Cys Val
 85 90 95

Arg Gly Pro Asn Lys Tyr Ala Phe Asp Pro Trp Gly Gln Gly Thr Leu
 100 105 110

Val Thr Val Ser Ser
 115

<210> 153
 <211> 106
 <212> PRT
 <213> artificial

<220>
 <223> V_region

<400> 153

Ser Tyr Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ser Pro Gly Gln
 1 5 10 15

Thr Ala Ser Ile Thr Cys Ser Gly Asp Lys Leu Gly Asp Lys Phe Ala
 20 25 30

Ser Trp Tyr Gln Gln Lys Ala Gly Gln Ser Pro Val Leu Val Ile Tyr
 35 40 45

Arg Asp Thr Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
 50 55 60

Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Met
 65 70 75 80

Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp Asp Ser Ser Thr Ala Val
 85 90 95

Phe Gly Thr Gly Thr Lys Val Thr Val Leu
 100 105

<210> 154

<211> 109

<212> PRT

<213> homo sapiens

<400> 154

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 100 105

<210> 155

<211> 109

<212> PRT

<213> homo sapiens

<400> 155

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Ser Ser
20 25 30

Asn Trp Trp Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp
35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu
50 55 60

Lys Ser Arg Val Thr Ile Ser Val Asp Lys Ser Lys Asn Gln Phe Ser
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
100 105

<210> 156

<211> 109

<212> PRT

<213> homo sapiens

<400> 156

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Asn Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
100 105

<210> 157
<211> 108
<212> PRT
<213> homo sapiens

<400> 157

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
1 5 10 15

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Tyr
20 25 30

Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
35 40 45

Gly Tyr Ile Tyr Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
50 55 60

Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe Ser Leu
65 70 75 80

Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala
85 90 95

Arg Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
100 105

<210> 158
<211> 108
<212> PRT
<213> homo sapiens

<400> 158

Asn Phe Met Leu Thr Gln Pro His Ser Val Ser Glu Ser Pro Gly Lys
1 5 10 15

Thr Val Thr Ile Ser Cys Thr Arg Ser Ser Gly Ser Ile Ala Ser Asn
20 25 30

Tyr Val Gln Trp Tyr Gln Gln Arg Pro Gly Ser Ser Pro Thr Thr Val
35 40 45

Ile Tyr Glu Asp Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser
50 55 60

Gly Ser Ile Asp Ser Ser Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly
65 70 75 80

Leu Lys Thr Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser
85 90 95

Ser Asn Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
100 105

<210> 159

<211> 108

<212> PRT

<213> homo sapiens

<400> 159

Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser Ala Ala Pro Gly Gln
1 5 10 15

Lys Val Thr Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn Asn
20 25 30

Tyr Val Ser Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu
35 40 45

Ile Tyr Asp Asn Asn Lys Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser
50 55 60

Gly Ser Lys Ser Gly Thr Ser Ala Thr Leu Gly Ile Thr Gly Leu Gln
65 70 75 80

Thr Gly Asp Glu Ala Asp Tyr Tyr Cys Gly Thr Trp Asp Ser Ser Leu
85 90 95

Ser Ala Phe Gly Thr Gly Thr Lys Val Thr Val Leu
100 105

<210> 160

<211> 109

<212> PRT

<213> homo sapiens

<400> 160

Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln
1 5 10 15

Arg Val Thr Ile Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Ala Gly
20 25 30

Tyr Asp Val His Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu
35 40 45

Leu Ile Tyr Gly Asn Ser Asn Arg Pro Ser Gly Val Pro Asp Arg Phe
50 55 60

Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu
65 70 75 80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser
85 90 95

Leu Ser Gly Phe Gly Gly Gly Thr Gln Leu Thr Val Leu
100 105

<210> 161
<211> 105
<212> PRT
<213> homo sapiens

<400> 161

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Cys Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Val Leu Val Ile Tyr
35 40 45

Gln Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
50 55 60

Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Met
65 70 75 80

Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp Asp Ser Ser Thr Ala Phe
85 90 95

Gly Thr Gly Thr Lys Val Thr Val Leu
100 105